

**A STUDY ON DIAGNOSTIC METHODOLOGY AND  
SYMPTOMATOLOGY OF SEYA KAMAALAI  
(IRON DEFICIENCY ANAEMIA)**

**(DISSERTATION SUBJECT)**



*For the partial fulfilment of the requirements to the Degree of*

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## 1.INTRODUCTION

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Siddha medicine is the most ancient and primitive medical system. Siddhars through their extraordinary perception and vision have understood the science and mechanism of metabolic processes, growth development, onset of diseases, treatment etc.

In humans, health is the general condition of a person's mind, body and spirit, usually meaning to be free from illness, injury or pain. Dietary habits and choices play a significant role in quality of life, health and longevity. Siddha system believes in the principle of “Food is medicine and medicine is food” and during lactating mothers are advised to take the foods rich in iron, protein and fibre so as to prevent many nutritional disorders both to the child as well as the mothers.

The physiological function in the body is mediated by three humors, vali azhal and iyyam that are made up of five elements. Maintaining a perfect state of equilibrium of three basic humours by means of the dietary habits, regular physical and mental activities. In normal healthy condition, the three humours exist with the ratio of 1:1/2:1/4 respectively. According to Siddha theory the root cause of any disease is alteration in the equilibrium of three humors ie. Vatham, Pitham and Kabam .

The Siddha principle comprises of examination of tongue, eyes, pulse, complexion, modulation in speech, tactile perception and examination of urine and stool. All these together constitute “Envagai thervugal” which form the basis of diagnostic methodology in Siddha system of medicine. Besides these, Envagai thervugal, there are some other parameters in Siddha systems which are greatly helpful in diagnosing various diseases, they are Manikkadai nool (Wrist circumference sign) and Sothidam (Astrology).

Diagnosis of diseases is an important factor in any system of medicine, unless the diagnosis is correct, even though good medicines were to be administered to the patient there will be no radical cure, unless the root cause of it is rectified. Without proper understandings of the signs and symptoms of the disease, one could not attempt treatment.

Siddhars have classified diseases into 4448 types. Sage Yugi was the pioneer among the Siddhars who classified diseases based on signs and symptoms and mainly three humours.

The author has selected the disease from the “Yugimuni Vaithiya Kaaviyam” for the clinical study of dissertation work on the basis of Siddha concept.

The clinical symptoms of “Seya kamaalai” relates more with the signs and symptoms of “Iron deficiency anemia” in Modern classification than any other condition.

Iron deficiency is the most common cause of nutritional anaemia in the world and it is recognised as a major public health problem throughout the globe, especially in the developing countries. Iron deficiency anemia is so common in rural and remote places due to poor standard of living, ignorance about diet though various reasons.

It affects billions of people worldwide, especially women of reproductive age, pregnancy women and young children. It is the most common type of anemia met in clinical practice.

The WHO estimates that more than 1/3rd of the world population are anemic, of which iron deficiency anemia is the most common and serious problem of public health significance. Prevalence of anemia in India is among the highest in the world but within the country prevalence rates differ substantially between different regions.

Globally, Anemia affects 1.62 million people which correspond to 24.8% of the population. The highest prevalence is in preschool-age children (47.4%) and the lowest prevalence is the men (12.7%). However, the population group with the greatest number of individuals affected is non-pregnant women (468.4 million/30.2%).

National Family Health Survey has reported anemia prevalence of 56.2 percent in women of 15-49 yr and 24.3 percent in men aged 15-49 yr. Iron deficiency is the most common cause of anemia in the world affecting 30% of the world's population equivalent to 500 million people.

Prevalence of anemia in rural populations in Tamilnadu is as high as 52%. This could be explained due to lack of awareness in these individuals. 60-70% of Indian adolescent girls are anemic. In children and young adults particularly in deprived socio-economic group, the prevalence of Iron deficiency anemia is 5% and 10% respectively.

In most developing countries anaemia in pregnancy makes an important contribution to maternal mortality and morbidity. Early detection of anaemia can help to prevent complications related to pregnancy and delivery as well as child development problem. So it is most important to diagnose seya kamalai for its proper treatment.

Clinical features of anemia are grouped under the name Paandu for all practical purposes among the Siddha physicians in the present times. Now here in the Siddha literature the clinical features of iron deficiency anemia had been mentioned in a single heading under “Seya kamalai”.

Iron deficiency anemia is so common in rural and semi urban places due to poor standard of living, ignorance about diet though various reasons. So it is most important to diagnose Seya kamaalai for its proper treatment . Hence I have selected the topic “**Seya kamaalai**” for my dissertation work.

I hope the outcome of this study will be greatly helpful to medical practitioners for better understanding the disease “Seya kamaalai”.

## **2. AIM AND OBJECTIVES**

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### **2.1 AIM:**

To conduct a study on Seya kamaalai as mentioned in yugimuni vaithiya kaaviyam, thereby to evolve a diagnostic methodology for Seya kamaalai in Siddha system of medicine.

### **2.2 OBJECTIVES:**

#### **2.2.1 PRIMARY OBJECTIVES:**

1. To elucidate a diagnostic methodology for Seya kamaalai
2. To correlate clinically, the symptoms of Seya kamaalai with that of closely resembling condition in modern medical literature which in turn helps in globalization of Siddha system among other medical systems.

#### **2.2.2 SECONDARY OBJECTIVES:**

1. To analyse literally on the Etiology, Pathogenesis, Clinical presentation of Seya kamaalai
2. To help in deriving a proper line of treatment and preventive measures for Seya kamaalai based on Siddha system of medicine by evolving a diagnostic method for the disease.

### 3.A.REVIEW OF LITERATURE- SIDDHA PHYSIOLOGY

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#### 3. A.1. SUGARANA NILAI (PHYSIOLOGICAL STATE) IN SIDDHA MEDICINE

The five basic elements, namely Aagayam (Space), Kaal (Air), Thee (Fire), Neer (Water), and Mann (Earth) are the building blocks of all the physical and subtle bodies existing in this whole universe. These are called as the ‘Adippadai Boothams’ (Basic Elements) (or) ‘Panchaboothams’.

These five elements together constitute the human body and origin of other material objects are explained as Pancheekaranam (Mutual Intra Inclusion). None of these elements could act independently by themselves. They could act only in co-ordination with other four elements. All the living creatures and the non-living things are made up of these five basic elements. The five basic elements form the connecting link between the Microcosm (Man) and Macrocosm (World) . This concept is evident from Siddhar’s lines,

“அண்டத்தில் உள்ளதே பிண்டம்;  
பிண்டத்தில் உள்ளதே அண்டம்”

Any change in the universe due to natural or unnatural causes will create changes in human systems. For example the natural disorders like cyclone, heavy rain, mist and scorching sun or man created impurities of air and water will create changes both in the atmosphere and in the human body. Hence the change in the elementary conditions of external world has its corresponding change in the human organs.

உலகம் பஞ்ச பூதம்

"நிலம் நீர்தீவளி விசும்போடைந்தும்  
கலந்தமயக் கமுலகம் மாதலின்"

-தொல்காப்பியம்

தேகம் பஞ்ச பூதம்

"தலங்காட்டி இந்தச் சடமான ஐம்பூதம்  
நிலங்காட்டி நீர் காட்டி நின்றிடுந் தீ காட்டி  
வலங்காட்டி வாயுவால் வளர்ந்தே இருந்தது  
குலங்காட்டி வானில் குடியாய் இருந்ததே".

-பதினென் சித்தர் நாடி சாஸ்திரம்

As per the above lines, the universe and the human body are made of five basic elements.

### **3. A.2. THE 96 BASIC PRINCIPLES (96 Thathuvam)**

According to Siddha system of medicine, 'Thathuvam' is considered as a science that deals with basic functions of the human body. Siddhars described 96 principles as the basic constituents of human body that include physical, physiological, psychological and intellectual components of an individual. These 96 Thathuvams are considered to be the cause and effect of our physical and mental well-being. The Thathuvam is the author of the conception of human embryo on which the theory of medicine is based.

#### **1. BOOTHAM – 5 (*ELEMENTS*)**

1. Aagayam - Firmament
2. Vaayu - Flatus(Air)
3. Thee - Fire
4. Neer - Fluid(Water)
5. Mann - Firm Ground( Earth)

#### **2. PORI – 5 (*SENSE ORGANS*)**

1. Sevi (Ear) -a structural component of 'Aagayam' bootham
2. Thol (Skin) -a structural component of 'Vaayu' bootham
3. Kann (Eye) -a structural component of 'Thee' bootham
4. Naakku (Tongue) -a structural component of 'Neer' bootham
5. Mookku (Nose) -a structural component of 'Mann' bootham

#### **3. PULAN – 5 (*FUNCTIONS OF SENSE ORGANS*)**

1. Kaetal -Hearing, a functional component of Aagayam bootham
2. Thoduthal -Touch, a functional component of Vaayu bootham
3. Paarthal -Vision, a functional component of Thee bootham
4. Suvaithal -Taste, a functional component of Neer bootham
5. Nugarthal -Smell, a functional component of Mann bootham

#### **4. KANMENTHIRIYAM – 5 (*MOTOR ORGANS*)**

1. Vaai (Mouth) - Speech is delivered in relation with Space element.
2. Kaal (Leg) -Walking takes place in concordance with Air element.
3. Kai (Hands) -Giving/Taking are carried out with the influence of Fire element.
4. Eruvaai (Rectum) -The excreta is eliminated in association with Water element.
5. Karuvaai (Sex Organs) -The Sexual acts are carried out in association with the earth element.

#### **5. KARANAM – 4 (*INTELLECTUAL FACULTIES*)**

1. Manam - Thinking about something
2. Bhuddhi - Deeply analyzes the same
3. Agankaaram - Determination to do the same
4. Siddham - Accomplishment of the determined Thing

#### **6. ARIVU – 1 (*WISDOM OF SELF REALIZATION*)**

To analyze good and bad

#### **7. NAADI – 10 (*CHANNELS OF LIFE FORCE RESPONSIBLE FOR THE DYNAMICS OF PRANAN*)**

1. Idakalai - Starts from the right big toe, runs criss-cross to end in the left nostril
2. Pinkalai - Starts from the left big toe, runs criss-cross to end at the right nostril.
3. Suzhumunai -Starts from moolaathaaram and extends upto centre of head
4. Siguvai - Located at the root of tongue; it helps in the swallowing of food and water
5. Purudan -Located in right eye.
6. Kanthari -Located in left eye.
7. Atthi -Located in right ear.
8. Allampudai -Located in left ear.
9. Sangini -Located in genital organ
10. Gugu -Located in ano-rectal region



## **8. VAAYU – 10 (VITAL NERVE FORCE WHICH IS RESPONSIBLE FOR ALL KINDS OF MOVEMENTS)**

### **1. Uyir kaal (Piraanan)**

This is responsible for the respiration of the tissues, controlling knowledge, mind and five sense organs and digestion of the food taken in.

### **2. Keel nokku kaal (Abanan)**

It lies below the umbilicus. It is responsible for the downward expulsion of stools and urine, ejaculation of semen and menstruation.

### **3. Paravu kaal (Viyanan)**

This is responsible for the motor and sensory function of the entire body and the distribution of nutrients to various tissues.

### **4. Mael nokku kaal (Uthanan)**

It originates at Utharakini. It is responsible for digestion, absorption and distribution of food. It is responsible for all the upward movements.

### **5. Samaanan (Nadu kaal)**

This is responsible for the neutralization of the other 4 Valis i.e. Piranan, Abanan, Viyanan and Uthanan. Moreover it is responsible for the nutrients and water balance of the body.

### **6. Naagan**

It is a driving force of eye balls responsible for movements.

### **7. Koorman**

It is responsible for the opening and closing of the eyelids and also vision. It is responsible for yawning.

### **8. Kirukaran**

It is responsible for the salivation of the tongue and also nasal secretion. Responsible for cough and sneezing and induces hunger.

### **9. Devathathan**

This aggravates the emotional disturbances like anger, lust, frustration etc. As emotional disturbances influence to a great extent the physiological activities, it is responsible for the emotional upsets.

10. Dhanancheyan

Expelled three days after the death by bursting out of the cranium. It is responsible for edema, plethora and abnormal swelling in the body in the pathological state.

**9. AASAYAM – 5 (VISCERAL CAVITIES)**

1. Amarasayam (Reservoir Organ) - Stomach. It lodges the ingested food.
2. Pakirvasayam (Absorption Site)-Small intestine. The digestion and assimilation of food, absorption of saaram from the digested food are done by this asayam.
3. Malavasayam (Excretory organ for solid waste) -Large Intestine, especially rectum, the place where the expulsion of undigested food parts and flatus takes place.
4. Chalavasayam (Excretory organ for liquid waste)- Urinary Bladder, kidney. Site of the formation and excretion of urine.
5. Sukkilavasyam (Genital organs.) –Site of production and development of spermatazoa and ovum.

**10. KOSAM – 5 (FIVE STATUS OF THE HUMAN BODY OR SHEATH)**

1. Annamaya Kosam -Gastro intestinal system
2. Pranamaya Kosam - Respiratory system
3. Manomaya Kosam - Mental System
4. Vignanamaya Kosam - Nervous system and higher intellect
5. Aananthamaya Kosam -Reproductive system

**11. AATHARAM – 6 (STATIONS OF SOUL) “ஓம் ந ம சி வா ய”**

**1. Moolatharam**

Situated at the base of spinal column between genital and anal orifice and beneath the perineum. Letter “ஓம்” is stationed here.

**2. Swathitanam**

Located 2 fingerwidths above the Moolaathaaram, (i.e.) midway between genital and navel region. Letter “ந” is inherently present here. Earth element is attributed to this region.

### 3. Manipooragam

Located 8 fingerwidths above the Swathitanam, (i.e.) at the naval center. Letter “𑌦” is inherently present here. Element is water.

### 4. Anakatham

Located 10 fingerwidths above Manipooragam, (i.e.) location of heart. Letter found is “𑌮”. Element is fire.

### 5. Visuthi

Located 10 fingerwidths above the Anakatham (i.e.) located in throat. Letter “𑌮” is inherently present. Element is Air.

### 6. Aakinai

Situated between the two eyebrows. Letter “𑌦” is inherently present here. Element is Space

## 12. MANDALAM – 3 (*REGIONS*)

### 1. Thee Mandalam (fire zone)

Fire Zone is found 2 finger widths above the Moolaathaaram

### 2. Gnayiru Mandalam (Solar zone)

Solar zone, located 4 finger widths above the umbilicus.

### 3. Thingal Mandalam (lunar zone)

Lunar zone is situated at the center of two eye brows

## 13. MALAM – 3 (*THREE IMPURITIES OF THE SOUL*)

### 1. Aanavam

This act clouds the clarity of thought, cognitive power of the soul, yielding to the egocentric consciousness like ‘I’ and ‘Mine’ claiming everything to be his own (Greediness).

### 2. Kanmam

Goes in collaboration with the other two responsible for incurring Paavam (the Sin) and Punniyam (Sanctity / virtuous deed).

### 3. Mayai

Serves as an obstacle due to the mentality of claiming ownership of the others property and thereby inviting troubles.

#### **14. THODAM- 3 (*THREE HUMOURS*)**

1. Vali (Vatham) - It is the creative force formed by combination of Vaayu and Aakaya bootham
2. Azhal (Pitham) - It is the protective force. Formed by Thee bootham
3. Iyam (Kabam ) -It is the destructive force. Formed by Mann and Neer Bootham.

#### **15. EADANAI -3 (*PHYSICAL BINDINGS*)**

1. Porul Patru - Materialistic affinity
2. Puthalvar Patru - Sibbling / Familial bonding
3. Ulaga Patru - Worldly affections

#### **16. GUNAM – 3 (*THREE COSMIC QUALITIES*)**

1. Sathuvam (Characters of Renunciations or Ascetic Virtues)  
The grace, control of senses, wisdom, penance, generosity, Excellence, calmness, truthfulness is the 8 qualities attributed to their benevolent trait.
2. Raasatham (Royal character)  
Enthusiasm, wisdom, valour, virtue, penance, offering gift, art of Learning, listening are the 8 traits
3. Thamasam (Carnal / Immoral Character)  
Immorality, lust, anger, murderousness, violation of justice, gluttony, falsehood, forgetfulness, fraudulence, etc.

#### **17. VINAI – 2 (*ACT*)**

1. Nalvinai - Good Acts (Meritorious acts)
2. Theevinai - Bad Acts (Sinful acts)

#### **18. RAGAM – 8 (*THE EIGHT PASSIONS*)**

1. Kaamam - Lust
2. Kurotham - Grudge / Hatred
3. Ulobam - Stingy
4. Moham - Infatuation
5. Matham - Rut (The feeling of high ego towards oneself)
6. Marcharyam - Internal Conflict, Envy
7. Idumbai - Mockery
8. Ahankaram - High Ego

### 19. AVATHAI – 5 (FIVE STATES OF CONSCIOUSNESS)

1. **Ninaivu** - State of wakefulness with the 14 karuvikaranathigal in all vibrancy (5 Pulan, 5 Kanmaenthiriyam and 4 Karanam) and is able to experience the pleasures and pains.
2. **Kanavu**– State of dreams. In this 10 karuvikaranathigal (5 Pulan, 5 Kanmaenthiriyam) except karanam all lies dormant in the neck.
3. **Urakkam** - State of Sleep after which one cannot recapitulate what is seen or heard. The respiration lies in the heart.
4. **Perurakkam** - State of Repose (Tranquil or Peaceful State). The Jeevaathma lies in the naabi, producing the respiration.
5. **Uyirpadakkam** – Oblivious of the surroundings. The Jeevaathma is deeply immersed in Moolaathaaram resulting in a state of unawareness.

### 3. A.3.THE UYIR THATHUKKAL

The physiological units of the Human body are,

- Vali (Vatham),
- Azhal (Pitham) and
- Iyyam (Kapham).

They are also formed by the combination of the five basic elements. Accordingly Vali is formed by the combination of Vali (Air) and Aagayam (Space). This is the Creative force. Azhal is formed by Thee (Fire). This is the Force of Preservation. Iyyam is formed by Mann (Earth) and Neer (Water). This is the Destructive Force. These three humors are in the ratio 4:2:1 in equilibrium which is a healthy normal Condition. They are called as the life forces or humours.

"பொங்கிய தைந்துக்குள் பொல்லாதது இம் மூன்றுதான்

தங்கிய வாயு சமத்தன் மகாவாதம்

பங்கிய வன்னியால் பகுந்தது பித்தமே

பகுந்த சலத்தில் பரிசிக்கும் நல்லையும்

வகுந்த இம்மூன்றால் வளர்ந்தது நோயெல்லாம்

அகுந்தது தானறிந்து அளவிட்ட யோகிகள்

மகிழ்ந்தே யிதில் நின்ற மயக்கம் அறிவாறே"

-பதினெண் சித்தர் நாடி சாஸ்திரம்

## THE FORMATION OF UYIR THATHUKKAL,

மூவகை நாடியும் உயிர் தாதுவும்

"தாது முறையே தனிஇடை வாதமாம்  
போதுறு பின்கலை புகன்றது பித்தமாம்  
மாது சுழுமுனை வழங்கிடும் ஐயமாம்  
ஒது முறை பார்த்து உணர்ந்தவர் சித்தரே"

-பதினென் சித்தர் நாடி சாஸ்திரம்

மூவகை வாயுவும் உயிர் தாதுவும்

"உணர்ந்த அபானன் உறும் அந்த வாதத்தில்  
புணர்ந்த பிராணன் புகும் அந்தப் பித்தத்தில்  
அணைந்த சமானன் அடங்கும் கபத்தோடு  
இணைந்திவை மூன்றுக்கு எடுத்த குறி ஒன்றே"

-பதினென் சித்தர் நாடி சாஸ்திரம்

The Vali naadi is formed by the combination of Abanan and Idagalai.

The Azhal naadi is formed by the combination of Piranan and Pinkalai.

The Iyya naadi is formed by the combination of Samanan and Suzhumunai.

### I.Vali (Vatham)

Vali is soft, fine and the temperate (coolness and hotness) which could be felt by touch.

#### *The sites of vali*

According to **Vaithya Sathakam**, Vali dwells in the following places:

"நெளிந்திட்ட வாதமபானத்தைப் பற்றி  
நிறைந்திடையைச் சேர்ந்துந்திக் கீழே நின்று  
குளிந்திட்ட மூடமதூ டெழுந்து காமக்  
கோடியிடையைப் பற்றியெழுங் றொக்கை நாடி  
நிணமான பொருத்திடமும் ரோமக் காலும்  
நிறைவாகி மாங்கிசமெல் லாம்பரந்து"

-வைத்திய சதகம்

Umbilicus, Rectum, Faecal matter, Abdomen, Anal region, Bones, Hip joints, Navel Plexus, Joints, Hair follicle and Muscles.

"அறிந்திடும் வாத மடங்கு மலத்தினில்"

-திருமூலர்

"நாமென்ற வாதத்துக் கிருப்பிடமே கேளாய்  
நாபிக்குக் கீழென்று நவில லாகும்"

-யூகி

According to Sage Thirumoolar and Sage Yugi muni, the location of Vatham is the anus and the sub navel region.

### ***Properties of Vali***

"ஒழுங்குடனே தாதேழ் மூச்சோங்கி இயங்க  
எழுச்சிபெற எப்பணியுமாற்ற எழுந்திரிய  
வேகம் புலன்களுக்கு மேவச் சுறுசுறுப்பு  
வாகளிக்கும் மாந்தர்க்கு வாயு"

-சித்த மருத்துவாங்கச் சுருக்கம்

The following are the natural properties of Vali

- 1) To stimulate the respiration
- 2) To activate the body, mind and the intellect.
- 3) To activate the fourteen different types of natural reflexes or urges.
- 4) To activate the seven physical constituents in functional co- ordination.
- 5) To strengthen the five sense organs.

In the above process Vatham plays a vital role in assisting the body functions.

## **II. Azhal (Pitham)**

The nature of Azhal is Atomic. It is sharp and hot. The ghee becomes watery, salt crystallises and jaggery melts because of heat. The heat of Azhal is responsible for many actions and their reactions.

### ***The sites of Azhal***

According to **Vaithiya Sathagam**, the Pingalai, Urinary bladder, Stomach and Heart are the places where Azhal is sustained. In addition to the above places, the umbilicus, epigastric region, stomach, sweat, saliva, blood, essence of food, eyes and skin are also the places where Azhal sustains. Yugi muni says that, the Azhal resides in urine and in the places below the neck region.

### ***The character of Azhal***

Azhal is responsible for the digestion, vision, maintenance of the body temperature, hunger, thirst, taste etc. Its other functions include thought, knowledge, strength and softness.

### ***The functions of Azhal***

- 1) Maintenance of body temperature
- 2) Produces reddish or yellowish colour of the body.
- 3) Produce heat energy on digestion of food.
- 4) Produces sweating
- 5) Induces giddiness.
- 6) Produces blood and the excess blood is let out.
- 7) Gives yellowish colouration to the skin, eyes, faeces and urine
- 8) Produce anger, heat, burning sensation, inaction and determination.
- 9) Gives bitter or sour taste.

### ***Types of Azhal***

#### **1. Aakkanal – Anila pitham or Prasaka pitham – The fire of digestion.**

It lies between the stomach and the intestine and causes digestion and dries up the moist ingested substance.

#### **2. Vanna eri – Ranjaga pitham – Blood promoting fire**

This fire lies in the stomach and gives red colour to the chyle and produces blood. It improves blood.

#### **3. Aatralanki – Saathaga pitham – The fire of achievement**

It gives energy to do the work.

#### **4. Ulloli thee – Prasaka pitham – The fire of brightness.**

It gives colour, complexion and lusture to the skin.

#### **5. Nokku Azhal – Alosaga pitham – The fire of vision.**

It lies within the eyes and causes the faculty of vision. It helps to visualize things.



### **III. Iyyam (Kapam)**

#### ***The nature of Iyyam***

Greasy, cool, dull, viscous, soft and compact are the natures of Iyyam.

#### ***Sites of Iyyam***

Head, tongue, eyes, nose, throat, thorax, bone, bone marrow, Joints, blood, fat, sperm and colon are the sites of Iyyam. It also lies in stomach, spleen, the pancreas, chyle and lymph.

#### ***The natural quality of Iyyam***

Stability, greasiness, formation of joints, the ability to withstand hunger, thirst, sorrow and distress are the qualities. It also helps to withstand sufferings.

#### ***Functions of Iyyam***

Greasiness, strength, roughness, knowledge, cool, growth, heaviness of bone, restriction of joint movements, pallor, indigestion, deep sleep and to have a sweet taste in tongue are the functions of Iyyam. The skin, eyes, faeces and urine are white in colour due to the influence of Iyyam.

### **Five types of Iyyam**

#### **1. Azhal Iyyam -Avalambagam**

Heart is the seat of Avalambagam. It controls all other 4 Iyyams

#### **2. Neerpi iyyam -Kilethagam**

Its location is stomach. It gives moisture and softness to ingested food.

#### **3. Suvai kaan iyyam – pothagam**

Its location is tongue. It is responsible for the sense of taste.

#### **4. Niraivur iyyam – Tharpagam**

It gives coolness to the eyes.

#### **5. Ondri iyyam – Santhigam**

It gives lubrication to the bones particularly in the joints

### **3. A.4. THE UDAL THATHUKKAL**

Udal Thathukkal are the basic physical constituents of the body. They are also constituted by the Five Elements.

## **SEVEN PHYSICAL CONSTITUENTS OF THE BODY**

- 1. Saaram** - This gives mental and physical perseverance.
- 2. Senneer** - Imparts colour to the body and nourishes the body
- 3. Oon** - It gives shape to the body according to the physical activity and plasters the skeleton to give the body a plumpy appearance.
- 4. Kozhuppu** - It lubricates the joints and other parts of the body for smooth functioning.
- 5. Enbu** - Supports the frame and responsible for the postures and movements of the body.
- 6. Moolai** - It occupies the medulla of the bones and gives strength and softness to them.
- 7. Sukkilam** - It is responsible for reproduction.

### **3. A.5. UDAL THEE (Four kinds of body fire)**

There are four kinds of body fire. They are Samaakkini, Vishamaakkini, Deeshaakkini and Manthaakkini.

#### **1. Samaakkini**

The digestive fire is called as Samaakkini. This is constituted by Samana Vayu, Anala Pitham and kilethaga Kapham. If they are in normal proportion, then it is called as Samaakkini. It is responsible for the normal digestion of the food.

#### **2. Vishamaakkini**

Due to deranged and displaced Samana Vayu, it takes longer time for digestion of normal food. It is responsible for indigestion due to delay in digestive process.

#### **3. Deeshaakkini**

The Samana vayu blends up with the Azhal, which leads to increased Anala Pitham, so food is digested rapidly.

#### **4. Manthaakkini**

The Samana vayu conjugates with the Iyyam, which leads to increased Kilethaga Kapham. Therefore food is sluggishly digested for a very longer period leading to abdominal pain, distention, heaviness of the body etc.

### 3. A.6.THINAI

*There are five thinai (the land)*

- |             |   |  |
|-------------|---|--|
| 1. Kurinchi | - | Mountain and associated areas          |
| 2. Mullai   | - | Forest and associated areas            |
| 3. Marudham | - | Agricultural land and associated areas |
| 4. Neidhal  | - | The coastal and associated areas       |
| 5. Paalai   | - | Desert and associated areas            |

### 3. A.7. KAALAM

Ancient Tamilians divided a year into six different seasons known as Perumpozhudhu and likewise the day into six segments which are known as Sirupozhudhu

#### **Perumpozhudhu:**

A year is divided into six seasons. They are as follows

- Kaarkalam – Monsoon season (August 16 – October 15)
- Koothirkalam – Postmonsoon season (October 16 – December 15)
- Munpanikalam- Early winter season (December 16 – February 15)
- Pin panikalam – Late winter season (February 16 – April 15)
- Illavenilkalam – Early summer season (April 16 – June 15)
- Mudhuvenilkalam – Late summer season (June 16 – August 15)

#### **Sirupozhuthu**

A day is divided into six yamams. They are,

1. Maalai (Evening),
2. Idaiyammam (Midnight),
3. Vaikarai (Dawn),
4. Kaalai (Morning),
5. Nannpakal (Noon),
6. Erpaddu (Afternoon).

Each perumpozhuthu and sirupozhuthu is associated with the three humors naturally.

### **3. A.8.FOURTEEN NATURAL REFLEXES/ URGES**

The natural reflexes excretory, protective and preventive mechanisms are responsible for the urges and instincts. They are 14 in number,

1. Vatham (Flatus)
2. Thummal (Sneezing)
3. Siruneer (Micturition)
4. Malam (Defaecation)
5. Kottavi (Act of yawning)
6. Pasi (Sensation of hunger)
7. Neer vetkai (Sensation of thirst)
8. Erumal (Coughing)
9. Ellaipu (Fatigue)
10. Thookam (Sleep)
11. Vaanthi (Vomiting)
12. Kaneer (Tears)
13. Sukilam (Semen)
14. Suvasam (Breathing)

These natural reflexes are said to be an indication of normal functioning of our body. A proper maintenance should be carried out and they should not be restrained with force.

## 3.B.SIDDHA PATHOLOGY

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### 3.b.1. KUGARANA NILAI IN SIDDHA MEDICINE

According to Siddha System, human body sustains the state of healthy living via keeping the Three Humours- Vatham, Pitham and Kabam in equilibrium, influenced by dietary habits, daily activities and the environment around. The three humours represent the five basic elements or bhuthas. In case this equilibrium is disturbed, it leads to a condition known as disease. It is basically the derangement of five elements, which in turn alters the Three Humors. There can either be a decrease or increase in the balance.

### 3. b.2. DISEASE

Disease is also known by other names viz sickness, distemper, suffering and ailment, distress of mind, chronic disease and dreadful illness.

### 3.b.3. THE CHARACTERISTICS FEATURE OF DISEASE

Diseases are of two kinds:

1. Pertaining to the body
2. Pertaining to the mind according to the variation of the three humors.

#### 1. Causes of Disease

Excepting the disease caused by our previous births, the disease is normally caused by the disparities in our food habits and actions. This has been rightly quoted in the following verses by Sage Thiruvalluvar,

"மிகினும் குறையினும் நோய்செய்யும் நூலோர்  
வளிமுதலா வெண்ணிய முன்று"

-திருவள்ளுவர்

The food and actions of a person should be in harmony with the nature of his body. Any increase or decrease in a humor viz. Vatham, Pitham, Kabam leads to the derangement of the three humors. The acceptance of food means the taste and quality of the food eaten and a person's ability to digest. 'Action' mean his good words, deeds or bad actions. According to Thiruvalluvar, the disease is caused due to the increase or decrease of three humors causing the upset of equilibrium.

So disease is a condition in which there is derangement in the five elements, which alters the three humors, reflected in turn in the seven physical constituents. The change could be an increase or decrease in the humours. This shows the following signs as per vitiation of the individual humour.

#### நோய் பிறக்கும் வகை

"பிணியினுற் பத்தியைப் பேசுவேன் பிணிமுதல்  
வாதபித் தங்கப மன்மந்திரி தந்திரி  
வீதமா யுடலரண் மெய்ப்புர வரச்செய்  
முறைசெயு மாதலான் முதற்புர மென்றுட  
கறைகுவ ராரிய ரதன்பரி வாரமா  
நோய்க்கண மிகுதியி னனுகுநுட் பமதாய்ப்  
பேய்க்கண மாமவை பெரும்பசி தாகுமூர்  
வழிநடை வெயின்மழை மலிதணீர் நனைவுடன்  
மந்தமாங் காரமாய் வார்த்தையா டுத(ற்)றுயில்  
வந்தவை விலக்குதன் மாதரைக் கூடுதல்'  
வெந்தறு கட்கதம் வீரமாய்ச் சுமத்தலும்  
மலசல பந்தனை வருமித னனமிகப்  
பெலமுறு நோய்களும் பிறப்பதும் நிச்சயம்."

- தேரையர் காப்பியம்

As per Theraiyar, the cause of disease is vitiated Vatha, Pitha and Kaba, increased appetite, increased thirst, excessive hot, anger, constipation, dysuria polluted water.

## 2. QUANTITATIVE CHANGES OF UYIR THATHUKKAL

HUMOUR	INCREASED	DECREASED
<b>VALI (Vatham)</b>	Wasting, blackish discoloration, affinity to hot foods, tremors, distended abdomen, constipation, weakness, insomnia, weakness in sense organs, giddiness and laziness.	Body pain, feeble voice, and diminished capability of the brain, decreased intellectual quotient, syncope and increased Kaba condition.
<b>AZHAL (Pitham)</b>	Yellowish discoloration of conjunctiva, skin, urine and faeces, polyphagia, polydypsia, dyspepsia, burning sensation all over the body and decreased sleep.	Loss of appetite, cold, pallor and features of increased Kabam.
<b>IYYAM (Kabham)</b>	Loss of appetite, excessive salivation, diminished activity, heaviness, pallor, cold, decreased physical constituents, dyspnoea, flatulence, cough and excessive sleep.	Giddiness, dryness of the joints and prominence of bones. Profuse sweating in the hair follicles and palpitation.

### 3. UDAL THATHUKAL

These are the changes produced when Udal thathukkal are affected.

UDAL KATTUKKAL	INCREASED FEATURES	DECREASED FEATURES
<b>1.SAARAM</b>	Loss of appetite, excessive salivation, diminished activity, heaviness, pallor, cold, decreased physical constituents, dyspnoea, flatulence, cough & excessive sleep.	Dryness of skin, tiredness, loss of weight, lassitude and irritability while hearing louder sounds.
<b>2.SENNEER</b>	Boils in different parts of the body, spleenomegaly, tumours, pricking pain, loss of appetite, haematuria, hypertension, reddish eye and skin, leprosy and jaundice.	Affinity to sour and cold food, nervous, debility, dryness and pallor.
<b>3.OON</b>	Tubercular adenitis, venereal diseases, extra growth around neck, cheeks, abdomen, thigh and genitalia.	Lethargic sense organs, pain in the joints, muscle wasting in mandibular region, gluteal region, penis and thighs.
<b>4.KOZHUPPU</b>	Identical feature of increased flesh, tiredness, dyspnoea on exertion, extra musculature in gluteal region, external genitalia, chest, abdomen and thighs.	Loins pain, spleenomegaly and emaciation.
<b>5.ENBU</b>	Excessive ossification and dentition.	Joint pain, falling of teeth, falling and splitting of hairs and nails.



<b>6.MOOLAI</b>	Heaviness of the body and eyes, swollen interphalangeal joints, oliguria and non-healing ulcers.	Osteoporosis & Blurred vision.
<b>7.SUKKILAM (OR) SURONITHAM</b>	Increased sexual activity, urinary calculi.	Dribbling of sukkilam/ suronitham or senner during coitus, pricking pain in the testis & inflamed and contused external genitalia.

#### 4. KAALAM

Change in Elementary conditions of the external world has its corresponding change in the human organs. They are as follows:

KAALAM	KUTTRAM	STATE OF KUTTRAM
<b>1. Karkaalam</b> <b>(Rainy season)</b> (Aavani – Puratasi) (Aug 16 – Oct 15)	Vatham ↑↑ Pitham ↑ Kabam (--)	Ectopic escalation Insitu escalation Restitution
<b>2. Koothir Kaalam</b> <b>(Postrainy season)</b> (Iypasi – Karthigai) (Oct 16 – Dec 15)	Vatham (--) Pitham ↑↑ Kabam (--)	Restitution Ectopic escalation Restitution
<b>3. MunpaniKaalam</b> <b>(Winter season)</b> (Markazhi – Thai) (Dec 16 – Feb 15)	Vatham (--) Pitham (--) Kabam (--)	Restitution Restitution Restitution
<b>4. Pinpani Kaalam</b> <b>(Post winter)</b> (Masi – Panguni) (Feb 16 – Apr 15)	Vatham (--) Pitham (--) Kabam ↑	Restitution Restitution Insitu escalation
<b>5. Elavenir Kaalam</b> <b>(Summer)</b> (Chithirai–Vaikasi) (Apr 16 – Jun 15)	Vatham (--) Pitham (--) Kabam ↑↑	Restitution Restitution Ectopic escalation
<b>6. MudhuvenirKaalam</b> <b>(Post summer)</b> (Aani – Aadi) (Jun 16 – Aug 15)	Vatham ↑ Kabam (--)	Insitu escalation Restitution

## 5. THINAI

S. NO	THINAI	LAND	HUMORS
1.	Kurinchi	Mountain and its surroundings Hilly terrain	Kabam
2.	Mullai	Forest and its surroundings Forest ranges	Pitham
3.	Marutham	Farm land and its surroundings Cultivable lands	All three humors are in equilibrium
4.	Neithal	Sea shore and its adjoining areas, Coastal belt	Vatham
5.	Palai	Desert and its surroundings Arid zone	All three humors are affected.

## 6. ALTERATION IN REFLEXES (14 VEGANGAL)

There are 14 natural reflexes involved in the physiology of normal human beings. If willfully restrained or suppressed, the following are resulted.

### 1. Vatham (Flatus)

This urge should not be suppressed. If it is suppressed it leads to chest pain, epigastric pain. Abdominal pain, ache, constipation, dysuria and indigestion predominate.

### 2. Thummal (Sneezing)

If restrained, it leads to headache, facial pain, low back pain and neuritic pain in the sense organs.

### 3. Siruneer (urine)

If restrained, it leads to urinary retention, urethral ulcer, joint pain, pain in the penis, gas formation in abdomen.

### 4. Malam (Faeces)

If restrained, it leads to pain in the knee joints, headache, general weakness, flatulence and other diseases may also originate.

**5. Kottavi (Yawning)**

If restrained, it leads to indigestion, leucorrhoea, and abdominal disorders.

**6. Pasi (Hunger)**

If restrained, it leads to the tiredness of all organs, emaciation, syncope, apathetic face and joint pain.

**7. Neer vetkai (thirst)**

If restrained, it leads to the affection of all organs and pain may supervene.

**8. Kaasam (Cough)**

If it is restrained, severe cough, bad breath and heart diseases will be resulted.

**9. Ilaippu (Exhaustiveness)**

If restrained, it will lead to fainting, urinary disorders and rigor.

**10. Nithirai (Sleep)**

All organs will get rest only during sleep. So it should not be avoided. If disturbed it will lead to headache, pain in the eyes, deafness and slurred speech.

**11. Vaanthi (Vomiting)**

If restrained, it leads to itching and symptoms of increased Pitham.

**12. Kanneer (Tears)**

If it is restrained, it will lead to Sinusitis, headache, eye diseases and Chest pain.

**13. Sukkilam (Semen)**

If it is restrained, there will be joint pain, difficulty in urination, fever and chest pain.

**14. Swaasam (Breathing)**

If it is restrained, there will be cough, abdominal discomfort and anorexia.

### 3. C.DIAGNOSTIC METHODOLOGY

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The Diagnostic methodology in Siddha system is unique as it is made purely on the basis of clinical acumen of the physician. The diagnosis is arrived from,

- Poriyal arithal and Pulanal arithal (Examination of sense organs)
- Vinaathal (Interrogation)
- Envagai thervu (Eight fold examination)
- Manikkadai nool (Wrist circumference sign)
- Sothidam ( Astrology)
- Assessment of deranged three dosham (Humours), Udal thathukal and 96 principles.

#### PORIYAL ARIDHAL

The physician should examine the patient's porigal by his porigal.

- |    |       |   |                                |
|----|-------|---|--------------------------------|
| 1. | Mei   | - | To feel all types of sensation |
| 2. | Vaai  | - | For knowing taste              |
| 3. | Kan   | - | For vision                     |
| 4. | Mooku | - | For knowing the smell          |
| 5. | Sevi  | - | For hearing                    |

#### PULANAL ARITHAL

The physician should examine the patient's pulangal by his porigal & Pulangal

- |    |           |         |
|----|-----------|---------|
| 1. | Hearing   | -Ear    |
| 2. | Vision    | -Eye    |
| 3. | Taste     | -Tongue |
| 4. | Sensation | -Skin   |
| 5. | Smell     | -Nose   |

## VINAADHAL (INTERROGATION)

The physician should interrogate the patient's name, age, occupation, native place, Socio – economic status, dietary habits, present complaints, history of present illness, aggravating factors, history of previous illness

## ENVAGAI THERVUGAL

“அகத்துறு நோயை கரத்தாம லகம்போல்  
பகுத்தறிவீர் நாடிப் பரிசம் - தொகுத்த நிறம்  
கட்டுவகைச் சொல்மொழிகண் கண்ட மல மூத்திரம் நா  
எட்டுவகை யாலு மறிவீர்”

- அகத்தியர் வைத்திய சிந்தாமணி வெண்பா - 4000

According to Agathiyar Vaithiya Sinthaamani Venba – 4000, the Envagaithervu Includes Naadi (Pulse) Naa (Tongue), Niram (Color), Mozhi (Voice), Vizhi (Eyes), Malam (Faeces), Neer (Urine) and Sparisam (Touch & palpation).

"நாடி பரிசம் நாநிறம் மொழிவிழி  
மலம் மூத்திரம் மருத்துவராயுதம்"

-தேரையர்.

"மெய்குறி நிறந்தொனி விழிநாவிருமலம் கைக்குறி"

-தேரையர்.

As per Saint Therayar, the eight methods of diagnosis are Naadi (Pulse) Naa (Tongue), Niram (Color), Mozhi (Voice), Vizhi (Eyes), Malam (Faeces), Neer (Urine) and Sparisam (Touch & palpation).

### பதினெண் சித்தர் நாடி சாத்திரம்

"பாரீர்நாடி யறிந்து உணர்ந்து பரமன் செயலும் பிணிமுறையும்  
நீரேயோடு மலசலமும் நிறமுங் குணமு முகக்குறியும்  
சாரே யிணங்குங்குழல் மடவீர்காலன் றேகம் வயதிளமை  
தேரேயறியுமுகநாடி நெறிங்குறியுஞ் செறியுஞ் சொல்வோமே"

-பதினெண் சித்தர் நாடி சாத்திரம்

As per Sage Agathiyar, Naadi (pulse), Malam (stools), Salam (urine), Niram (complexion), Gunam (character), MugaKuri (facies), Thegam (constitution), Vayadhu (age), Elamai are the diagnostic tools.

"தொகுக்கலுற்ற அட்டவிதப் பரீட்சை தன்னை  
துலக்கமுரும் பண்டிதரே தெளிவதாகப்  
பகுக்கரிய நாடியை நீ பிடித்துப் பாரு  
பகர்கின்ர வார்தையைப்பார் நாவைப்பாரு  
வகுக்கரிய தேகமதைத் தொட்டுப்பாரு  
வளமான சரீரத்தின் நிறத்தைப் பாரு  
சகிக்கரிய மலத்தைப்பார் சலத்தைப் பாரு  
சார்ந்தவிழி தனைப்பார்த்துத் தெளிவாய்க் கானே"

-கண்ணுசாமிப் பரம்பரை வைத்தியம்

According to literature KannuSaami Paramparai Vaithiyam, Naadi, Naa, Thegam, Thodu unarvu, Niram, Malam, Salam and Vizhi are the diagnostic tools.

### அகத்தியர் வைத்திய ரத்தின சுருக்கம்

"நாடியால் முன்னோர் சொன்ன நற்குறிகுணங்களாகும்  
நீடிய விழியினாலும் நின்ற நாட்குறிப்பினாலும்  
வாடிய மேனியாலும் மலமோடு நீரினாலுஞ்  
சூடிய வியாதி தன்னைச் சும் பெற வறிந்து சொல்லே"

According to Agathiyar Vaithiya Rathina Surukkam, the diagnostic tools are Naadi (Pulse), Vizhi (Eyes), Kurigunam (Signs), Nalkurippu (Chronology), Maeni (Constitution), Malam (Stools) And Neer (Urine).

#### பரிபூரண நாடி

"அட்டமாங்கிரிகடன்னை யறிந்து நீயுணரவேண்டில்  
வட்டமாமுகங்கள்பல்லும் வாயதில்நாக்குங்காயங்  
கட்டருமலங்கள் கைதனில்நாடிதானுந்  
திட்டமாயறிந்துசெய்யுந் திறமுள்ளவயிததியராமே"

According to the Paripoorana Naadi, the diagnostic parameters are Mugam (Facies), Pal (Teeth), Vai (Mouth), Naakku (Tongue), Kaayam, Irumalam, Naadi (Pulse).

#### தன்வந்திரி பகவான்

"திருமறை முனிவன் கூறும் வாகடச் செய்கைதன்னில்  
வருபல வியாதியான வகையறி குவதே தென்னில்  
உருவறு நாடி யாலு மொண்முக மலநீ ராலும்  
தெரிவிழி நாவினாலுந் தந்தலக் கணத்தி னாலும்"

-தன்வந்திரி (ப.சி.நாடி சாத்திரம்)

According to Dhanvantri Vaithiyam, the diagnostic parameters are Naadi (Pulse), Mugam (Facies), Malam (Stools), Neer (Urine), Udal (Constitution), Vizhi (Eyes), Naa (Tongue), Pal (Teeth).

#### பதினெண் சித்தர் நாடி சாத்திரம்

"திரணியதோர் நாடிகண்கள் சத்தத்தோடு  
தேகத்தின் துபரிசம் வானம் நாக்கு  
இரணமலம் இவைகளெட்டும் இதம்படவே  
தான்பார்த்துக் குறிப்புங் கண்டு  
பரனருளாற் பெரியோர்கட்பாதம் போற்றிப்  
பண்புதவறாமற் பண்டிதணஞ் செய்வீரே"

-பதினெண் சித்தர் நாடி சாத்திரம்



According to the above literature, the diagnostic tools are Naadi (Pulse), Kan (Eyes), Sattham (Voice), Thegam (Constitution), Sparisam and Naa (Tongue).

### 1.TONGUE EXAMINATION (நாத்தேர்வு)

“முள்ளாய் வெடித்து கருத்தான் முன்பின் வெளுத்து  
தள்ளாநீ ருண்டோ சேர்ந்தால் பசந்தால் - எல்லாம்  
நடுவாம் பலபலவாம் நற்சன்னி முன்னோய்  
ஓடுநீரில் நாவிந்நோது.”

- அகத்தியர் வைத்திய சிந்தாமனி வெண்பா - 4000

As per Agathiyar Vaithiya Sinthaamani Venba – 4000, fissured and black tongue represent vitiated Vatha humor, pallor represents Kabam , green colour represents Pitha humor and mixed appearance of these features resembles Sanni noi.

“பலமான ருசியறியும் நாவின் கூற்றைப்  
பகர்கின்றேன் வாதரோகி யின்றன் நாவு  
கலமாக வெடித்து கறுத்திருக்கு முட்போல்  
கண்டு கொள்வாய் பித்தரோகியின்றன் நாவு  
நலமுற சிவந்து பச்சென்றிருக்கும் நட்பிலா  
சிலேத்துமரோகி யின்றன் நாவு  
தலமதனிலுற்றமுதி யோர்கள் சொன்ன  
தன்மையடி தடித்து வெளுத்திருக்கும்பாரே”

-கண்ணுசாமி பரம்பரை வைத்தியம்

In Vali derangement, tongue will be cold, rough, furrowed and tastes pungent. In Azhal, it will be red or yellow and kaippu taste will be sensed. In Iyyam, it is pale, sticky and sweet taste will be lingering. In depletion of Thontham, tongue will be dark with raised papillae and dryness.

Examination of tongue also includes the salivary examination. The following stanza describes salivary examination

“எச்சிற் பரிவாயிளநீர்பால் வெண்ணெயனை  
யெச்சிற் பரிவா யிலகுநுரை - யெச்சிற்  
களியடைமா நன்றுமுதற் நண்ணான்கு முன்னிக்  
களியடைமா மேவுபிட கா.”

- சிகிச்சாரத்ன தீபம்

## 2. EXAMINATION OF COMPLEXION (உடல் நிறத் தேர்வு)

“உரைத்தகற்ப் பான்வாத ரோகிபித்த ரோகி  
அரைத்தமஞ்ச ளைக்குளித்தோன் ஆவான் - இரத்தம்  
குளித்தவனு மாவான் கொடும்சிலேத்தும் ரோகி  
வெளுத்திடுவான் தொந்தரோகியெ..”

- அகத்தியர் வைத்திய சிந்தாமனி வெண்பா - 4000

"மூன்றாகும் வாதபித்த சிலேத்து மத்தால்  
மிகுந்தமுறத் தொந்தித்த ரோகி தேகம்  
தோன்றாத சீதய வுஷ்ணங் காலமூன்றுந்  
தொகுத்தேன்யான் திரேகத்தி னிறத்தைக் கேளு  
ஊன்றாத வாதவுடல் கறுத்துக் காணும்  
ஊரியபித்த முடல் சிவப்புப் பசுமைகாணும்  
போன்றாத வையவுடல் வெண்மை தோன்றும்  
பொருந்துந்தொந்த ரோகவுடற் கிவற்றை யொக்கும்"

-கண்ணுசாமி பரம்பரை வைத்தியம்

"பனைவாத தேகநிறங் கறுத்து நிற்கும்  
பைத்தியதேக நிறமஞ்சள் சிவப்பதாமே  
தாமே சிலேட்டு மதேகநிறம் வெளுப்பு தான்  
தொந்தேகம் இந்நால் விதமாயநிற்கும்"

-தன்வந்திரி (பதினெண் சித்தர் நாடி சாத்திரம்)

In Vali, Azhal and Iyyam vitiations, the colour of the body will be dark, yellow or red and fair respectively.

### 3. VOICE EXAMINATION (ஒலித் தேர்வு)

“பலரோகி வார்த்தைப் பலவிதமாம் வாதத்  
தலைரோகி வார்த்தைச் சமமாகும் - நிலைகடந்த  
பித்தரோ கிக்குஉயர்ந்த பேச்சுண்டாம் ச்லேட்டுமந்தான்  
சத்தம்ஈ னச்சுரமாம் தான்.”

-அகத்தியர் வைத்திய சிந்தாமனி வெண்பா - 4000

"பார்ப்பதான் வாதரோகி யின்றன் வார்த்தை  
பக்குவமாய்ச் சமசத்த மாயிருக்கும்  
சேர்ப்பதுதான் பித்தரோகியின்றன் வார்த்தை  
செப்பக்கோள பெலத்துமே யுறத்திருக்கும்  
ஏற்பதுதான் ஐயரோகி யின்றன் வார்த்தை  
யெளிதாகச் சிறுத்திருக்குமியல்பிதாகும்  
கேசற்கவே யிம்முன்றுந் தொந்தமாகில்  
கூசாமற் பலவிதமாய் பேசுவாரே"

- கண்ணுசாமி பரம்பரை வைத்தியம்

"மாமயிலே சத்தமது அறிய வேண்டில்  
வாதரோகிசம தொனியாய் வார்த்தை பேசும்  
ஈமமுள்ள பித்தந்தான் இறைந்த கூறும்  
இயம்பிடும் சிலேத்தும ரோகிக்கீனசத்தம்  
நாமுரைத்தோம் தொந்த ரோகிக்குத் தானிந்த  
நால்விதமாய் மொழிந்த சத்தம் நயந்து காணே"

-பதினெண் சித்தர் நாடி சாத்திரம்

In vitiation of Vali, Azhal and Iyyam, the voice would be normal, high pitched and shrill or low pitched respectively. By the voice, the strength of the body can be assessed.

#### 4. THE EYE EXAMINATION (கண் தேர்வு)

“கண்கறுத்து நீரோடில் காலாம் நடுவாகில்  
கண்பசக்கும் சொக்கும் கடையாகில் - கண்பீளை  
சாடி வெளுக்குமே சன்னிவாதம் பித்தமுமென்  
றோடியகா மாலை பசக்கும்”

- அகத்தியர் வைத்திய சிந்தாமனி வெண்பா - 4000

As per Agathiyar Vaithiya Sinthaamani Venba – 4000, in vitiated Vali eyes turn black and tears shed. In vitiated Azhal humour , mukkutram and in jaundice yellowish discoloration occurs. In vitiated Iyyam, the eyes turn white.

" உண்மையாய் கண்கள்குறிப் பதைக்கேள் வாதம்  
உற்றவிழி கறுத்துநொந்து நீருங் காணும்  
தண்மையிலாப் பித்தரோகி யின்றன் கண்கள்  
சார்பாகப் பசுமைசிவப் பேறுங் காணும்  
வண்மையிலா வையரோகி விழிகள் தானும்  
வளமான வெண்மைநிற மேதா நாதம்  
திண்மையிலாத் தொந்தரோகி யின்றன் கண்கள்  
தீட்டுவாய் பலநிறமென் றறைய லாமே"

-கண்ணுசாமி பரம்பரை வைத்தியம்

"காணுகின்ற வாத ரோகிக்கு கண்கள்  
கருநிறமாய் நொந்துமிகத் தண்ணீர்பாயும்  
பூணுகின்ற பித்தரோகிகடி மஞ்சள் போலிருக்கம்  
சிவப்பு நிறப்பொலிவு தோன்றும்"

-பதினெண் சித்தர் நாடி சாத்திரம்

In Vali disease, the tears is darkened, in Azhal disease they are yellow, in Iyya disease they are whitish in colour and in Thontha disease the tears are multi coloured. In Vali disease there will be excessive tears (epiphora). In disturbance of all the three humuors, eyes would be inflammed and reddish.

##### 5. FAECES EXAMINATION (மல தேர்வு)

“கறுத்தமல பந்தமலங் காலாகும் பித்தம்

சிறுத்தமுட் டிணம்செம்மை சேரும் - பொறுத்தொருக்கால்

சீதமலந் தில்லையுமாம் சேர்ந்தபல ரோகியாம்

மீதமலம் எண்ணிறமு மே.”

- அகத்தியர் வைத்திய சிந்தாமனி வெண்பா - 4000

As per Agathiyar Vaithiya Sinthaamani Venba – 4000, in vitiated Vali, the stool is hard and black. In vitiated Azhal, it is hot and red. In vitiated Iyyam it is cool and watery.

" ஒக்குமே வாத நோய் மலத்தைப் பார்க்கில்

உகந்தமலம் கறுகியே கறுத்திருக்கும்

மிக்கபித்த நோய்மலத்தை யுற்றுப் பார்க்கில்

மிகுந்தசிவப்புடன் பசுமை தானுந் தோற்றும்

மைக்குவளை மனேகே னைய ரோகம்

மலமதுதான் வெண்மைனிற மாயிருக்கும்

பக்குவமா யிம்மூன்றுந் தொந்திப் பாகில்

பகருமின் நிறங்கள்வகை பரிந்து காணும்"

-கண்ணுசாமி பரம்பரை வைத்தியம்.

In excacerbated Vali, faeces is hard, dry and black in colour. In Azhal vitiation, it is yellow. In Iyyam, disturbance it is pale.

## 6. URINE EXAMINATION (நீர் தேர்வு)

“வாதரோ கம்தெளிந்தான் மஞ்சளித்தான் மற்றையது  
சீதனுரைத் தார்பலவாம் சேளர்ந்தநோய் - கோதகலா  
முத்திரத்தின் உண்மை மொழிந்தோம் இனிச் சொல்வாம்  
நாத்திரத்தின் உள்ளவகை நாம்.”

- அகத்தியர் வைத்திய சிந்தாமனி வெண்பா - 4000

" ஓங்கிய வாதத்தோர்க்கு நீர்விழுங் குணந்தா நுரைக்கிற  
பூங்கொடி கறுத்துநொந்து சிறுத்துடன் பொருமி வீழும்  
பாங்குடன் பித்தத்தோர்க்கும் பசியநீர் சிவந்து காட்டி  
ஏங்கவே கறுக்கதாக எரித்துடன் கடுத்து வீழும்  
வீழுமே சிலேற்பனத்தோர் நீர்க்குணம் விளம்பக் கேளாய்  
நாளுமே வெளத்துறைந்து நலம்பெற வீழுங் கண்டாய்  
வாள்விழி மானேதொந்த ரோகமா னிடர்க்குத் தானே  
தாளுநீர் பலநிறந்தா னெனவே சாற்றி னோமே"

- கண்ணுசாமி பரம்பரை வைத்தியம்

‘Neer’ refers to Urine ‘Kuri’ refers to Sign. Theraiyar, one of the renowned authors of Siddha medicine described urine examination and stages of health. He had explained about the colour and consistency of the urine in vitiated humor and disease. He also emphasised the spreading nature of a single drop of oil on the surface of the urine indicating the imbalance of specific dosha and prognosis of disease. Normal urine is straw coloured and odourless. The time of the day and food taken will have an impact on the colour of the urine.

### COLOUR OF URINE

- Yellow colour – similar to straw soaked water – indigestion
- Lemon colour – good digestion
- Reddish yellow – heat in body
- Colour similar to flame of forest red or flame coloured excessive heat
- Colour of saffron – extreme heat

“மாணிக்கம் பால்பிரசு மஞ்ச ளிஃதுயிர  
மாணிக்கம் பால்வரிசை மாறாநீர் - மாணிக்க  
முத்தம் மாதிரி யொருநாலு மந்தமுனே  
யுத்தம் மாதிரி யுன்.”

- சிகிச்சாரத்ந தீபம்

As per Sikicharathna Theepam,

#### **CLOUR OF URINE - PROGNOSIS**

- Ruby red or milky white - Poor
- Honey - Slow and take long time
- Golden yellow - Good

#### **NEIKKURI (நெய்க்குறி)**

“அருந்து மாறிரதமும் அவிரோதமதாய்  
அஃகல் அலர்தல் அகாலவூன்தவிர்ந்தழற்  
குற்றள வருந்தி உறங்கி வைகறை  
ஆடிகலசத் தாவியே காதுபெய்  
தொரு முகூர்த்தகலைக்குட்படு நீரின்  
நிறக்குறி நெய்க்குறி நிருமித்தல் கடனே”  
“ அரவென நீண்டினஃகே வாதம்  
ஆழிபோல் பரவின் அஃதே பித்தம்  
முத்தொத்து நிற்கின் மொழிவதன் கபமே”

-அகத்தியர் வைத்திய ரத்தின சுருக்கம்

The spreading pattern of oil drop is the indicative of Vali, Azhal and Iyyam diseases e.g

1. Aravu (Snake Pattern of spread) indicates Vali disease
2. Mothiram (Ring Pattern of spread) indicates Azhal disease
3. Muthu (Pearl Pattern of spread) indicates Iyya disease

In Neikkuri, the rapid spread of oil drop; Pearl beaded and Sieve type of spreading pattern indicates incurable state of the disease. From this, we can assess the prognosis by the Neikkuri.

"இலகுமா முத்தி ரத்தி லெண்ணையை விட்டுப் பார்க்கில்  
கலக்கஞ் செய் வாதத் தோர்க்குக் காணவே நீள மாய்ப்போம்  
பிலனுறு மெய்யை வாட்டும் பித்தமே சிதறிக் காட்டும்.  
சாற்றிய கபந் தனக்குச் சல்லடைக் கண்போல் காணும்  
தேற்றிய திரிதோ டந்தான் சொல்முன்று குணமுங் காட்டும்  
வேற்றொரு துளியாய் நின்றால் வெகுதாம் சாத்தியந்தான்  
ஆற்றிமெள் ளப்ப டர்ந்தா வதுசுக சாத்ய மாமே

ரினி லமுந்திப் போனால் நிகழ்ந்திடு மசாத்தியந்தான்  
வாரிடு முளையாய் கேளாய் வளைய பாத்திரத்தி லேனும்  
பாரினில் குயவன் செய்மண் பாத்திரந் தனிலா னாலும்  
சாரவே பிடித்து வெய்யிற் றனில்வைத்துப் பார்ப்பாய்தானே."

- தேரையர் விருத்தம் - சிகிச்சாரத்ந தீபம்

SPREADING PATTERN OF OIL	-	INTERVENTION
Lengthening	-	Vali
Splits	-	Azhal
Sieve	-	Iyyam
Stands as a drop	-	Poor prognosis
Slowly spreads	-	Good prognosis
Drop immerses into the urine	-	Incurable disease



## 6. TOUCH ( தொடு உணர்வு)

"வெம்மை குறைந்தாலு மிகுந்தாலும் வாதபித்தம்  
தம்மை நிரைநிரையாய்ச் சாற்றுவார்- வெம்மையன்றி  
சீதமும்அவ் வாறாகில் சிலேட்டும மொன்றுதொந்த  
மீதமும்அவ் வாறாகு மேல்."

- அகத்தியர் வைத்திய சிந்தாமனி வெண்பா - 4000

"நேயமுடனே வாதத்தின் தேசந்தானும்  
நேர்மையாய்க் குளிர்ந்து சில விடத்திலே தான்  
மாயமுட னுட்டணமுந் துடிதுடிப்பு  
மருவுதலாம் பித்தத்தின் தேகந் தானும்

தோயவே வுட்ணமதா யிருக்குந் தெளிவாய்  
சேத்துமத்தின் தேகமது குளிர்ந்திருக்கும்  
பாய தொந்த தேகமது பலவாறாகும்  
பரிந்து தொட்டுத் தேகத்தைப் பார்த்துப் பேசே"

-கண்ணுசாமி பரம்பரை வைத்தியம்

In Vali disease, some regions of the body felt chill and in some areas they are hot. In Azhal disease, we can feel heat. In Iyya disease, chillness can be felt. In Thontham diseases, we can feel altered sensations.

## 8. NAADI (நாடி)

The 'Pulse Diagnosis' is a unique method in Siddha Medicine. The pulse should be examined in the Right hand for male and the left hand for female. The pulse can be recorded at the radial artery. By keenly observing the pulsation, the diagnosis of disease as well as its prognosis can be assessed clearly.

Naadi is nothing but the manifestation of the vital energy that sustains the life within our body. Naadi plays an most important role in Envagai thervu and it has been considered as foremost thing in assessing the prognosis and diagnosis of various diseases. Any variation that occurs in the three humors is reflected in the Naadi. These three humors organize, regularize and integrate basic functions of the human body. So, Naadi serves as a good indicator of all ailments.

## நாடி பார்க்கும் வகை

"இடுமென்ற நாடிகள்பார்க்கும் வகையைக் கேளு  
என்னவென்றால் நடுவிரல் நீவிப்பின்னே  
அடுமென்ற அடுத்தவிரல் மோதிரமாம் விரலை  
அப்பனே இளுத்தபின்பு சுண்டுவிரலிழுத்து  
உடுமென்ற தூண்டுவிர லிழுத்து அப்பால்  
உத்ததொரு அங்குட்ட விரலைநீ விக்கரத்தில்

படுமென்ற சீயோதி அங்குலமோ தள்ளி  
பார்தடவி மூன்றுதரம் சுரம்பார்க்கும் வகையே  
வகை என்ன வாதமது ஒண்ணைரையாம் பித்தம்  
வளமையொன்று அய்யங்கால் வளமாய்நிற்கில்  
பகையில்லை நாடிகளுந் தொந்த மில்லை  
பண்பான் சுகரொசருருபக் கூறுசொன்னேன்"

-அகத்தியர் கனகமணி100

Naadi is felt by,

Vali	-	Tip of index finger
Azhal	-	Tip of middle finger
Iyyam	-	Tip of ring finger

மூவகையும் மாத்திரை அளவும்

"வழங்கிய வாதம் மாத்திரை ஒன்றாகில்  
வழங்கிய பித்தம் தன்னில் அரைவாசி  
அழங்கும் கபந்தான் அடங்கியே காலோடில்  
பிழங்கிய சீவற்குப் பிசுகொன்று மில்லையே"

-நோய் நாடல் முதல் பாகம்

The pulse is measured in wheat/grain expansion height. The normal unit of pulse diagnosis is 1 for Vali (Vatham), ½ for Azhal (Pitham) and ¼ for Iyyam (Kapham).

## THE PULSE PLAY

Compared to the gait of various animals, reptiles and birds,

“வாகிலன்னங் கோழி மயிலென நடக்கும் வாதம்

ஏகிய வாமையட்டை யிவையென நடக்கும் பித்தம்

போகிய தவளை பாம்பு போலவாம் சேத்துமந்தான்”

--நோய் நாடல் முதல் பாகம்

Vali - Movement of Swan and Peacock

Azhal - Movement of Tortoise and Leech

Iyyam - Movement of Frog and Serpent.

“பார்க்கையில் கைவிகாரம் பார்த்தா லாடவர்க்கு

எற்கும் வலக்கை இடக்கை - மடவார்க் காகு”

- அகத்தியர் வைத்திய சிந்தாமனி வெண்பா - 4000

Naadi is examined in right side for men and on the left side for women.

## MANIKADAI NOOL (Wrist circumetric sign)

### Agathiya soodamanikayaru ..

“கமலக்கை மணிக்கையில் கயறு சூத்திரம்

விமலனே நோக்கியே வேடமாமுனி

திமிலாம் பிணியது சேரச் செப்பியே

அமலனாமுனிக்கு முன்னருளிச் செய்ததே”

-பதினெண் சித்தர் நாடிநூல்

According to the Pathinen Siddhar Naadinool, Manikadainool is also helpful in diagnosis. This manikkadai nool is a parameter to diagnose the disease by measuring the circumference of the wrist by means of a thread and then dividing the measured circumference with the patient's fingers. By this measurement the disease can be diagnosed.

When the Manikkadai nool is 11 fbs, the person will be stout and he will live a healthy life for many years. When the Manikkadai nool measures between 4 to 6, it indicates poor prognosis of disease and the severity of the illness will be high and it leads to death.

## **MANIKKADAI - INFERENCE NOOL**

10 fbs	-	Pricking pain in chest and limbs, gastritis and ulcer result.
9 $\frac{3}{4}$ fb	-	Fissure, dryness and cough will be resulted.
9 $\frac{1}{2}$ fbs	-	Odema, increased body heat, burning sensation of eye, fever, Mega noi and anorexia.
9 $\frac{1}{4}$ fbs	-	Dysuria, insomnia, sinusitis and burning sensation of eye.
9 fbs	-	Impaired hearing, pain around waist, thigh pain, unable to walk.
8 $\frac{3}{4}$ fbs	-	Increased body heat, skin disease due to toxins, abdominal discomfort, cataract, sinusitis.
8 $\frac{1}{2}$ fbs	-	Leucorrhoea, venereal disorder and Infertility will occur..
8 $\frac{1}{4}$ fbs	-	Stout and painful body. Headache. Sinusitis and toxins induced cough.
8 fbs	-	Abdominal discomfort, gastritis, anorexia and venereal diseases.
7 $\frac{3}{4}$ fbs	-	Piles, burning sensation of limbs, headache, numbness occur. Within 2 years cervical adenitis and epistaxis results.
7 $\frac{1}{2}$ fbs	-	Osteoporosis, abdominal discomfort, burning sensation of eyes, increased body temperature. Within 6 days all the joints of the limbs presents a swelling.
7 $\frac{1}{4}$ fbs	-	Lumbar pain, increased pitha in head, anemia, eye pain, odema and somnolence
7 fbs	-	Pitham ascends to head, haemetemesis, phlegm, burning sensation of limbs and constipation.
6 $\frac{3}{4}$ fbs	-	Eye ache, dizziness, testis disorder. Within 3 years it causes anuria, pain and burning sensation over limbs, facial sweating results.

6 ½ fbs	-	Thirst, anorexia, increased body heat and Vatham results.
6 ¼ fbs	-	Diarrhoea, belching, vomiting and mucous dysentery
6 fbs	-	Reduced weight, phlegm in chest. It results in death within 20 days.
5 ¾ fbs	-	Delirium, dizziness, loss of consciousness . It results in death even if the patient takes gruel diet.
5 ½ fbs	-	Severity of illness is increased. Toxins spread to the head. Tooth darkens. Patient will die in 10 days.
5 ¼ fbs	-	Patient seems to be sleepy and death results on the next day.
5 fbs	-	Pallor and dryness of the body. Kabam engorges the throat and the person will die.
4 ¾ fbs	-	Dryness of tongue and tremor present. Patient will die in 7 days.
4 ½ fbs	-	Shrunken eyes, odema will present and death results in 9 days.
4 ¼ fbs	-	Tremor, weakness of limbs and darkening of face occurs. Finally death results in two days.
4 fbs	-	Pedal odema will be present. Patient will die in 5 days.

### 3. A.9. THE ASTROLOGY

#### Macrocosm and Microcosm

Man is said to be Microcosm, and the Universe is Macrocosm; since what exist in the Universe exists in the human body too. Man is being an integral part of universal nature. The forces prevailing in the microcosm (Human body) are analogous with that of the forces prevailing in the macrocosm (Universe). The natural forces acting in and through various organs of the body are intimately related to or similar to or correspond to the forces acting in and through the organisms of the world.

This closely follows the Siddhar's doctrine,

"அண்டத்திலுள்ளதே பிண்டம்

பிண்டத்திலுள்ளதே அண்டம்

அண்டமும் பிண்டமு மொன்றே

அறிந்து தான் பார்க்கும் போதே"

- சட்டமுனி

**Astral influences:**

All the influences which are radiated from the sun, planets and that of the stars can act upon the human bodies. Moon exercises a very bad impact on the disease in general especially during the period of new moon. For instance, paralysis, brain affections, dropsy, and stimulation of sexual perversions are resulted during the newmoon. Mars causes anemia and lack of nervous vigour. A conjugation of the moon with other planets such as Venus, mars, etc may make its influence still more injurious.

The 8<sup>th</sup> place forms the laghanam which deals about ones age, chronic diseases, death etc. In the organisms of man, these forces may act in an abnormal manner and cause disease. Similarly, in the great organism of the cosmos, they act abnormally likewise and bring about disease on earth and its atmospheric condition like earthquake, storms etc. The Mars invisibly influences human's blood constituents. The Venus instigates intersexual love.

The following are the instances in which every sign of the zodiac acts towards some particular parts of the body.

**1. According to T.V.S. Dictionary:**

- |   |             |   |   |
|---|-------------|---|---|
| • | Aries       | - | Neck  |
| • | Taurus      | - | Neck and shoulder                             |
| • | Gemini      | - | Arms and hands                                |
| • | Cancer      | - | Chest and adjacent parts.                     |
| • | Leo         | - | The heart and stomach                         |
| • | Virgo       | - | The intestines, base of stomach and umbilicus |
| • | Libra       | - | Kidney  |
| • | Scorpio     | - | Genitals                                      |
| • | Sagittarius | - | Lips  |
| • | Capricorns  | - | Knees   |
| • | Aquarius    | - | Legs  |
| • | Pisces      | - | Feet  |

## **2. According to literature Thiruvalluvar periya sunthara sekaram.**

- |                |                 |
|----------------|-----------------|
| 1) Mesham      | - Head          |
| 2) Rishabam    | - Face          |
| 3) Mithunam    | - Neck          |
| 4) Kadagam     | - Shoulders     |
| 5) Simmam      | - Chest         |
| 6) Kanni       | - Side of body  |
| 7) Thulaam     | - Back, stomach |
| 8) Virutchigam | - Testicles     |
| 9) Thanusu     | - Thigh         |
| 10) Magaram    | - Knees         |
| 11) Kumbam     | - Heel          |
| 12) Meenam     | - Foot          |

## **4.A.10. The Impact of the Planets on the Human Organs**

### **According to the literature Siddha Maruthuvanga Surukkam**

Each of these planets hold jurisdiction over some parts of the body similar to the signs of the Zodiac. The planets exercise special power over some parts of the body resulting in a disease or diseases in accordance with their impacts on the three basic humors in the system.

#### **1. Sani (Saturn)**

It exhibits supremacy over the bones, tooth, cartilages, ear, spleen, bladder and brain and gives rise to fever, leprosy, paralysis, dropsy, cancer, cough, asthma, deafness of the right ear, hernia etc.

#### **2. Guru (Jupiter)**

It holds jurisdiction over the blood, liver, pulmonary veins, diaphragm, Muscles of the trunk and sense of touch & smell.

### 3. Sevvai (Mars)

It has got power over the bile, gall bladder, left ear, pudendum, kidneys, fever, jaundice, convulsions, hemorrhage, carbuncle, erysipelas, ulcer etc.

### 4. Sukkiran (Venus)

It exercises its impact on the blood and semen, throat, breast, abdomen, uterus, genitalia, taste, smell, pleasurable sensation, gonorrhea, barrenness, Abscesses or even death from sexual passions or from poison.

### 5. Pudhan (Mercury)

It holds jurisdiction over the animal, spirit, also over legs, feet, hands, fingers, tongue, nerves and ligaments and produces fevers mania, phrenitis, epilepsy, convulsion, profuse expectoration or even death by poison, witchcraft and so on.

Planets	Organs of impact
1. Solar force	Heart
2. Lunar force	Brain
3. Mars	Gall Bladder
4. Mercury	Kidney
5. Venus	Lungs
6. Jupiter	Liver
7. Saturn	Spleen

### 5. According to literature Thiruvalluvar Periya Sunthara Sekaram.

1. Sooriyan	- Head
2. Santhiran	- Face
3. Sevvai	- Chest
4. Puthan	- Center of Posterior Trunk
5. Guru	- Stomach
6. Sukkiran	- Groin, Genitalia
7. Sani	- Thigh
8. Raagu	- Hands
9. Kedhu	- Legs



Each of these rasis and the organs of impact as well as the Girahams are found to be related with the resultant diseases of corresponding organs. Therefore, the human body is impregnated with the vital forces that could be acted upon by the astronomical bodies in the sky. With the augmented spiritual force, a sage is able to get control over the above said planets. All the others are under the influence of the forces exhibited by these asteroids.

#### **4. READING BETWEEN THE LINES OF SEYA KAMAALAI**

##### **4.1. ACCORDING TO YUGIMUNI VAITHIYA KAAVIYAM**

The song for Seya kamaalai is as follows,

செய காமாலை

"முகம்தான் வீங்கிக் கண்வெளுத்து மூச்சும் எடுத்து முட்டதுவாய்  
அகம்தான் துடித்து நாவறண்டு அணுகும் தாது கெட்டிருக்கும்  
மிகவும் அசனம் செல்லாது மேனி வறண்டு வெளுப்பேறும்  
சிகையே தூக்கி அடித்தாற் போல செய காமாலை எனலாமே"

-யுகிமுனி வைத்திய காவியம் பக்க எண்:139 பாடல் எண்:435

According to the text Yugimuni vaithiya kaaviyam, the sign and symptoms of Seya kamaalai are given as Puffiness of face, Pallor of eyes, Difficulty in breathing, Palpitation, Thirst, Menorrhagia, Poor appetite, Pallor of the body and Fatigue.

S.No	LINES OF POEM	BREAK UP SYMPTOMATOLOGY
1	முகம்தான் வீங்கி	PUFFINESS OF FACE
2	கண்வெளுத்து	PALLOR OF EYES
3	மூச்சும் எடுத்து முட்டதுவாய்	DIFFICULTY IN BREATHING
4	அகம்தான் துடித்து	PALPITATION
5	நாவறண்டு அணுகும்	DRYNESS OF TONGUE
6	தாது கெட்டிருக்கும்	MENORRHAGIA
7	அசனம் செல்லாது	POOR APPETITE
8	மேனிவறண்டு வெளுப்பேறும்	PALLOR OF THE BODY
9	சிகையே தூக்கி அடித்தாற் போல	DIZZINESS,FAINTING

#### 4.2 ACCORDING TO T.V.S DICTIONARY,

S.NO	WORDS FROM POEM	TAMIL MEANING	ENGLISH MEANING	LEXICON T.V.Sambasivam pillai
1	முகம்வீங்கி	முகம் குளுப்பை தட்டல்	Face becoming Swollen	TVS,page no:817,vol-v
2	கண்	விழி	The eye	TVS, page no:1014,vol-II
3	வெளுத்து	வெளுப்பு	Pallor	TVS, page no:1014,vol-II
4	மூச்சும் எடுத்து முட்டதுவாய்	மூச்சு முட்டல்,மூச்சு விட முடியாமை	Difficulty respiration, dyspnoea, breathing hard	TVS, page no:872,vol-V
5	துடித்து	திடீரென குதித்தல்	Suddenly jumping	TVS, page no:1171,vol- IV,Part:II
6	நாவறண்டு	நாக்கு வறளல்	Patched ness of the tongue,thirst for water	TVS, page no:1720,vol-IV
7	தாது கெட்டிருக்கும்	சப்த தாது	Menorrhagia	TVS, page no:1014,vol-II
8	அசனம்	உணவு	Food	TVS, page no:106,vol-I
9	மேனி	உடல்	Body	TVS, page no:811,vol-V
10	வெளுப்பேறும்	வெளுப்பு	To become pallor	TVS, page no:1014,vol-II
11	சிகையே	தலை	Head,Hair	TVS, page no:2063,vol-III
12	தூக்கி அடித்தாற்	நிறுத்தல்	Weighing	TVS, page no:1268,vol-IV

#### 4.aANALOGY OF YUGIMUNI'S LINES & QUOTINGS FROM

YUGIMUNI VAITHIYA KAAVITAM

PHRASES

(ABOUT SEYA KAMAALAI)

"...முகம்தான் வீங்கி..."

QUOTINGS FROM MODERN TEXT

(ABOUT IRON DEFICIENCY ANAEMIA)

- “When the iron deficiency anaemia develops, then symptoms of anaemia occur: pallor, **puffiness of the face**, swelling of the feet and ankles”.

**Ref: Page 1529, Manson's Tropical Diseases - 2009**

**Published by Gordon C. Cook, Alimuddin Zumla**

- “*Iron deficiency anemia* with symptoms including a “**puffy face**”, “swollen feet and ankles,” along with breathlessness, vertigo, apathy, and heart palpitations”.

**Ref: Page 102, The Caribbean Slave: A Biological History - 2002**

**Published by Kenneth F. Kiple**

- “Blood is also rich in protein, so that chronic blood loss can result in profound protein malnutrition, which is associated with **edema of the face** and limbs”.

**Ref: Page 22-Forgotten People, Forgotten Diseases: The Neglected Tropical- Peter J. Hotez - 2008**

**YUGIMUNI VAITHIYA KAAVITAM**

**PHRASES**

**(ABOUT SEYA KAMAALAI)**

**“...கண்வெளுத்து...”**

**QUOTINGS FROM MODERN TEXT**

**(ABOUT IRON DEFICIENCY ANAEMIA)**

“The result is fatigue, weakness, headache, apathy, **pallor**, and poor resistance to cold temperatures. In a dark-skinned person, the tongue and eye lining, normally pink, will be very pale. Because haemoglobin is the bright red pigment of the blood, the skin of a fair person who is anemic may become noticeably pale”.

**Ref: Nutrition and Diet ,  
published by Linda Kelly DeBruyne, Kathryn Pinna, Eleanor Noss  
Whitney - 2011**

“Ocular Manifestations of Anemia: The eye is a unique avenue to visualize the effects of anemia. The cardinal symptom of conjunctival **pallor**, usually expressed when the red blood cell count is 50% of normal, is a variable clinical findings”.

**Ref: - Page 192, Clinical Medicine in Optometric Practice  
Published by Bruce G. Muchnick - 2007**

YUGIMUNI VAITHIYA KAAVITAM

PHRASES

(ABOUT SEYA KAMAALAI)

“...முச்சம் எடுத்து முட்டவாய்...”

QUOTINGS FROM MODERN TEXT  
(ABOUT IRON DEFICIENCY ANAEMIA)

“Iron deficiency anaemia is characteristically a hypochromic, microcytic anaemia. Signs and symptoms besides the usual anaemia manifestations of white facial complexion, **shortness of breath**, fatigue, heart palpitation, and dizziness, glossitis (inflammation of the tongue), cheilosis (red lips with fissures at the angles), and koilonychias”.

Ref: - Page 95, **A handbook of Chinese hematology**

Published By Simon Becker - 2000

“Haematological *Iron deficiency anaemia*: In severe anaemias there may be general features such as **dyspnoea on exertion**, angina, or ankle swelling and pale conjunctivae, nail beds and palmar creases”.

Ref:- Page 6, **Gastroenterology and Hepatology: A Clinical Handbook** - 2007

Nicholas J. Talley, Isidore Segal, Martin D. Weltman

“The clinical characteristics of *iron deficiency anemia* are nonspecific and include pallor, rapid exhaustion, muscular weakness, anorexia, lassitude, difficulty in concentrating, headache, palpitations, **dyspnea on exertion**, angina on effort, peculiar craving for unnatural foods (pica), ankle oedema, and abnormalities involving all proliferating tissues, especially mucous membrane and the nails. The onset is insidious and may progress slowly over many months or years”.

Ref:- Page 372, **Essentials of Medical Biochemistry: With Clinical Cases**

N. V. Bhagavan, Chung-Eun Ha - 2011

“Symptoms of *anemia* include pallor, easy fatigue, **breathlessness with exertion**, heart palpitations, and loss of appetite”.

Ref: - Page 179, **Exercise Physiology: Integrating Theory and Application**

William Kraemer, Steven Fleck, Michael Deschenes - 2011

**PATHOPHYSIOLOGIC CHANGES IN THE IRON DEFICIENCY ANAEMIA**

“**Dyspnoea on exertion**, fatigue, listlessness, pallor, inability to concentrate, irritability, head ache”.

Ref: **Straight A's in Pathophysiology**

Rita Breedlove, Lippincott Williams & Wilkins - 2005

YUGIMUNI VAITHIYA KAAVITAM

PHRASES

(ABOUT SEYA KAMAALAI)

“...அகம்தான் துடித்து...”

QUOTINGS FROM MODERN TEXT

(ABOUT IRON DEFICIENCY ANAEMIA)

“Iron deficiency anaemia causes dyspnoea, oedema of feet and **palpitation**”.

**Ref- page 162,2006 - Textbook of obstetrics Published By Padubidri & Anand, V. Padubidri, Ela Anand**

“**Tachycardia and palpitations** may occur as the body tries to compensate for the low arterial oxygen content with an increase in cardiac output”.

**Ref: Page 274,Porth Pathophysiology: Concepts of Altered Health States – 2009  
Ruth A. Hannon, Charlotte Pooler, Carol Mattson Porth**

“Signs and symptoms of iron deficiency anaemia are related to impaired oxygen transport: fatigue, dyspnoea, **palpitation**, tachycardia and angina”.

**Ref: - Page 344, Quick Look Nursing: Oxygenation: Oxygenation  
Lisa Kennedy Sheldon - 2007**

“Most of the symptoms of **iron deficiency** are a result of the associated **anemia** and may include fatigue, rapid heart rate, **palpitations**, and rapid breathing on exertion”.

**Ref:An Evidence-Based Approach to Vitamins and Minerals: Health  
Jane Higdon, Victoria Drake**

“**Iron deficiency anemia** is more frequently found in premature or low-birth-weight infants, adolescent girls, alcoholic clients, and the elderly. The symptoms are fatigue, **palpitations**, tachycardia, exertional dyspnea, weakness, and pallor”.

**Ref: Medical Surgical Nursing: An Integrated Approach - Page 483  
Lois White, Gena Duncan, Wendy Baumle – 2012**



**“Iron deficiency anemia** can be associated with irritability, **palpitations**, dizziness, breathlessness, headache, and fatigue. Fatigue is a particularly common complaint among patients”.

**Ref: Wintrobe's Clinical Hematology - Volume 2 - Page 823**  
**John P. Greer, John Foerster, George M. Rodgers – 2008**

“The most common symptoms associated with **iron deficiency anaemia** include: tiredness, lethargy, dyspnoea. **Palpitations**. Changes in physical appearance can also occur including dry, flaking nails, spoon-shaped nails, pale complexion, abnormally smooth tongue, Painful ulcers on the corners of the mouth”.

**Ref: Oxford Handbook of Perioperative Practice - Page 72**  
**Suzanne Hughes, Andy Mardell - 2009**

YUGIMUNI VAITHIYA KAAVITAM

PHRASES

(ABOUT SEYA KAMAALAI)

“...தாது கெட்டிருக்கும்...”

QUOTINGS FROM MODERN TEXT

(ABOUT IRON DEFICIENCY ANAEMIA)

“*Iron deficiency anemia* manifests with the general signs and symptoms of other anemias, **but with additional symptoms such** as cold intolerance, irritability, concave or ridged nails, glossitis, *menstrual irregularities*, delayed wound healing, palpitations, and syncope (fainting)”.

**Ref: Introduction to Pathology for the Physical Therapist Assistant - Page 167 By Moin**

“*Menstrual disturbances* are commonly associated with *iron deficiency anaemia*”.

**Ref: De Gruchy's Clinical Haematology in Medical Practice,  
5th Ed- Page 46**

**Frank Firkin, Colin Chesterman, Bryan Rush - 2008**

“*Disturbances in menstruation* are common in iron deficiency, and not infrequently, or is exacerbated by, excessive menstrual blood loss”.

**REF: Wintrobe's Clinical Hematology - Volume 2 - Page 823**

**John P. Greer, John Foerster, George M. Rodgers - 2008**

YUGIMUNI VAITHIYA KAAVITAM

PHRASES

(ABOUT SEYA KAMAALAI)

“...நாவறண்டு அணுகும்...”

QUOTINGS FROM MODERN TEXT

(ABOUT IRON DEFICIENCY ANAEMIA)

“ **The dryness of mouth** or xerostomia is often seen in association with vitamin A deficiency, ariboflavinosis, pellagra, pernicious anemia, *iron deficiency anemia*, sprue and dehydration”.

Ref:Textbook of Orthodontics - Page 134

Singh - 2004

“In iron- deficiency anemia, which is the result of an insufficient intake of iron, the tongue also changes appearance. Both the tongue and mouth become sore and in many cases, **the papillae of the tongue become atrophied with some red color and with a dry appear**”.

Ref: Diagnostic methods in oriental medicine, page no: 169

By Yoshiaki Omura

“**Dry tongue** in a patient with iron deficiency anemia”.

Ref: Oral medicine: a clinical approach with basic science correlation irwin walter scopp

“Typical symptoms include pallor, exhaustion, pale inner eyelids, pale fingernails, a pale, **dry tongue**, pale, dry skin, and a hollow ,easily compressed pulse”.

Ref: The Earthwise Herbal: A Complete Guide to New World Medicinal Plants, By Matthew Wood

“**Thirst** is a symptom of **iron-deficiency anemia**”.

Ref: Nutrition and fitness

YUGIMUNI VAITHIYA KAAVITAM

PHRASES

(ABOUT SEYA KAMAALAI)

"...மிகவும் அசனம் செல்லாது ..."

QUOTINGS FROM MODERN TEXT

(ABOUT IRON DEFICIENCY ANAEMIA)

" "The clinical characteristics of *iron deficiency anemia* are nonspecific and include pallor, rapid exhaustion, muscular weakness, **anorexia**, lassitude, difficulty in concentrating....".

**Ref:**Essentials of Medical Biochemistry: With Clinical Cases - Page 372

N. V. Bhagavan, Chung-Eun Ha - 2011

"Symptoms of **anemia** include pallor, easy fatigue, **breathlessness** with **exertion**, heart palpitations, and **loss of appetite**".

**Ref:**Exercise Physiology: Integrating Theory and Application - Page 179

William Kraemer, Steven Fleck, Michael Deschenes - 2011

Iron deficiency during childhood results in **decreased appetite** and growth retardation. As iron levels decrease, there is less ghrelin, a gastric hormone that increases appetite. A decrease in ghrelin levels in *iron deficiency anemia* can lead to **loss of appetite** and an increase in pica or the consumption of non-nutritive items.

**Ref:**Introduction to public health for chiropractors - page 110

Michael t. Haneline, william c. Meeker - 2010 -

YUGIMUNI VAITHIYA KAAVITAM

PHRASES

(ABOUT SEYA KAMAALAI)

"...சிகையே தூக்கி அடித்தாற் போல..."

QUOTINGS FROM MODERN TEXT

(ABOUT IRON DEFICIENCY ANAEMIA)

Some women may notice **fatigue, light headedness**, decreased tolerance for exercise, and pallor, particularly in the nail beds, underside of eyelids, lips, and palms”.

**Ref: The New Harvard Guide to Women's Health - Page 36**

**Karen J. Carlson, Stephanie A. Eisenstat, Terra Diane Ziporyn - 2004**

“Iron deficiency anemia, a microcytic hypochromic anemia caused by inadequate supplies of iron needed to synthesize hemoglobin, characterized by pallor, **fatigue**, and weakness”.

**Ref: Mosby's Pocket Dictionary of Medicine, Nursing & Health Professions**

**Mosby - 2009**

“Anemia: **Fatigue**, *pallor* and shortness of breath on exertion are common complaints. Symptoms of *iron deficiency anemia* may include *pallor*, decreased appetite, abdominal pain, generalized fatigue, sleep disturbances, frontal head ache and shortness of breath with exercise”.

**Ref: Chronic Complex Diseases of Childhood: A Practical Guide**

**- Page 160**

**Shahram Yazdani, Sean A McGhee, E. Richard Stiehm – 2011**

“In general, the symptoms of **iron deficiency anemia** are those of anemia of any cause: **fatigue**, **dyspnea on exertion**, and dizziness”.

**Ref: Pdq Hematology - Page 52**

**William F. Kern - 2002**

“Patients with this condition may experience the classical symptoms of *anaemia* -*fatigue*, shortness of breath and *palpitations* on exertion”.

**REF: Biomedical Sciences: Essential Laboratory Medicine**

**- Page 356**

**Raymond Iles, Suzanne Docherty - 2011**

“Clinically, *iron-deficiency anemia* may present with symptoms such as dizziness, headache, heart *palpitations*, and *fatigue*”.

**Ref: Gynecology: integrating conventional, complementary, and natural - Page 120**

**Adam Ostrzenski – 2001**

“Tachycardia and *palpitations* may occur as the body tries to compensate for the low arterial oxygen content with an increase in cardiac output. In anemia, the overall oxygen-carrying capacity of haemoglobin is reduced, causing tissue hypoxia. Tissue hypoxia can give rise to *fatigue*, weakness, dyspnoea and sometimes angina. Hypoxia of brain tissue results in *headache*, *faintness* and dim vision”.

**Ref: Porth Pathophysiology: Concepts of Altered Health States -**

**Page 274**

**Ruth A. Hannon, Charlotte Pooler, Carol Mattson Porth - 2009**

#### 4.b. READING BETWEEN THE LINES OF YUGIMUNI VAITHIYA KAAVIYAM

**YUGIMUNI VAITHIYA KAAVIYAM PHRASES  
(ABOUT SEYA KAMAALAI)**

“...முகம்தான் வீங்கி...”

In this first line of the poem, sage yugi states that seya kamalai was characterised by facial edema. Facial edema is a common feature in Iron deficiency anemia, which is due to the fact that oxygen cannot be transported from lungs to the extremities of the body resulting in swelling of the extremities.

**YUGIMUNI VAITHIYA KAAVIYAM PHRASES  
(ABOUT SEYA KAMAALAI)**

கண்வெளுத்து

In the above mentioned phrase, sage yugi refers about the pallor of conjunctiva of eyes. This is a very common symptom in all types of anemia. The patho-physiology behind this symptom is deficient oxygen supply to the tissues of mucous membrane

**YUGIMUNI VAITHIYA KAAVIYAM PHRASES  
(ABOUT SEYA KAMAALAI)**

**மூச்சும் எடுத்து முட்டதுவாய்**

In the above mentioned phrase, yugi describes about dyspnoea on exertion. Usually in anemia lungs has to function above its capacity to compensate the oxygen deficiency in tissues, which is characterised by dyspnoea. It is therefore presumed that yugi's description refers to dyspnoea in iron deficiency anemia.

**YUGIMUNI VAITHIYA KAAVIYAM PHRASES  
(ABOUT SEYA KAMAALAI)**

**அகம்தான் துடித்து**

As the RBC's has very less oxygen carrying capacity in anaemic individuals, hearts has to pump more blood in order to maintain proper oxygen levels in tissues, which is characterised by palpitations of heart. This leads to a plausible conclusion that yugi's description in above phrase is about the palpitations felt in iron deficiency anemia.



**YUGIMUNI VAITHIYA KAAVIYAM PHRASES**  
**(ABOUT SEYA KAMAALAI)**

தாது கெட்டிருக்கும்

Heavy menstrual bleeding is considered as the important cause for iron deficiency anemia. Because in menorrhagia there will be loss of blood, which in turn results in heavy loss of iron from our body. This medical fact has been clearly illustrated by Yugi in the above mentioned line.

**YUGIMUNI VAITHIYA KAAVIYAM PHRASES**  
**(ABOUT SEYA KAMAALAI)**

நாவறண்டு அணுகும்

Long standing chronic iron deficiency anemia causes epithelial tissue changes in some patients leading to dryness of tongue. This is exemplified by Yugi in the text referred above.

**YUGIMUNI VAITHIYA KAAVIYAM PHRASES  
(ABOUT SEYA KAMAALAI)**

அசனம் செல்லாது

Iron is responsible for the production of ghrelin-a gastric hormone, which plays an important role in the increasing appetite. So iron deficiency anemia is characterised by anorexia, which is explained by Yugi in his text above.

**YUGIMUNI VAITHIYA KAAVIYAM PHRASES  
(ABOUT SEYA KAMAALAI)**

மேனி வறண்டு வெளுப்பேறும்

In the above mentioned phrase, yugimuni states that seya kaamalai will be characterised by pallor of skin. In iron deficiency anemia skin loses its colour due to low iron content in RBC and decreased oxygen supply, which is seen as pallor of skin. Hence it is clear that pallor of skin quoted in yugimuni's text refers to the pallor of skin seen in Iron deficiency anemia.

**YUGIMUNI VAITHIYA KAAVIYAM PHRASES**

**(ABOUT SEYA KAMAALAI)**

சிகையே தூக்கி அடித்தாற் போல

Iron deficiency anemia is characterised by frequent giddiness due to lack of oxygen supply to central nervous system. As Yugimuni describes the same symptom in the above lines it is clear that giddiness is one of the syptom of Seya kamaalai.

All together it is very clearly known from the above explanations that Seya kamaalai mentioned in Yugi's text refers to iron-difeciency anemia described in modern system of medicine.

## 5.REVIEW OF LITERATURE- SEYA KAMAALAI

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Siddha literatures deal with classification of diseases mainly by Mukkutra theory that is Vaatham, Pitham and Kabam.

"வழங்கிய வாதம் மாத்திரை யொன்றாகில்  
தழங்கிய பித்தம் தன்னில வரைவாசி  
அழங்கும் கபந்தா னடங்கியே காலோடில்  
பிழங்கிய சீவற்கு பிசுகொன்று மில்லையே."

- திருமூலர்

"மற்றுநல் வாதமு மாறாத பித்தகபம்  
முற்றுமவை முரணா மொய்ம்புடனே-உற்றிருக்கில்  
நீதியாய் நோயில்லை நின்றவவை மாறிடவே  
பேதிக்கும் நாடியென்று பேசு."

- கண்ணுசாமியம்

Kamaalai noi is caused by derangement of Pitham. Hence the basic details regarding Pitham are briefly explained before going into the study about "Seya kamaalai" .

### **Mukkutra Theory of Pitham:**

Pitham (Azhal) is one of the three vital humour (Vatham, Pitham, and Kabam). Among the Panchaboodhas, it is formed by the Theyu bootham. In healthy individuals, the existences of the three humours are found in the ratio of 1: ½: ¼ respectively. This is explained as

"மெய்யளவு வாதமொன்று மேல் பித்தமோரரையாம்  
ஐயங் காலென்றே அறி"

- கண்ணுசாமியம்

This ratio is altered when there is disturbance to Pitha thathu, which leads to alteration of Pitham leading to Pitha diseases.

### Location of Pitham in the Body:

"தானான பித்தம் பிங்கலையைப் பற்றிச்  
சாய்வான பிராணவாயுவு தன்னைச்சேர்ந்து  
ஊனான நீர்ப்பையில் அணுகி மூலத்  
துதித்தெழுந்த அக்கினியை உறவு செய்து  
மானேகே ளிருதயத்தி லிருப்பு மாகி  
மயலாகி நினைவாகி மயக்க மாகி  
கானான சிரந்தனிலே இரக்க மாகிக்  
கொண்டுநின்ற பித்தநிலை கூறினோமே."

- கண்ணுசாமியம்

- Pingalai
- Praanavayu
- Moolakkini
- Neerpai - Urinary bladder
- Irudhayam - Heart
- Thalai - Head
- Kopuzh - Naval
- Undhi - Abdomen
- Iraippai - Stomach
- Viyarvai - Sweat
- Naavil oorukindra neer - Salivary secretion
- Senneer - Blood
- Saaram - Chyle.
- Kan - Eye.
- Thol – Skin

Moreover, As per **Thirumoolar's** thought,

"பிரிந்திடும் பித்தம் பேராஞ்சலத்தினில்"

As per **Yugimuni's** thought

"போமென்ற பித்தத்துக்கிருப்பிடமே கேளாய்

பேரான கண்டத்தின் கீழதாகும்"

**General Characteristics of Pitham:**

- Veppam - Hot
- Koormai - Sharpness
- Neippu - Lubricative
- Nekizhchi - Viscosity
- Pitham conceives the properties of the substance to which it combines.

**Qualities of Pitham by food:**

Some of characters of food we consume lead to aggravation of Pitha humour. Some of the foods have the quality of neutralizing the aggravated Pitha humour, which is given as follows

"பித்தத்தின் சீர்குனத்தைப் பேசிடிலோ ராறாகும்  
சுத்தப்பசை தீயும் சொல்கடுமை - மெத்த  
திரவம் புளியோடு சீர்கார முற்றிங்  
குரமாய் நிலைபெருமா முன்."

"தோன்றிவரும் பித்தந் தொடரா தடங்கிடவே  
சான்றவறட்சி குளிர்ச்சி சாந்தமுடந் - ஈன்றதொரு  
கெட்டியுடனே கிளரினிப்பு கைப்பி னோடு  
கிட்டும் பரிகாரங் கேள்."

-கண்ணுசாமியம்

**Six qualities of food which aggravate Pitham:**

Hot	-	அக்கினி
Acidic	-	புளிப்பு
Mobility	-	ஊருந்தன்மை
Liquid	-	சலரூபம்
Aggressive	-	குரூரம்
Pungent	-	காரம்

#### **Six neutralizing qualities of food for aggravated Pitham:**

Cold	-	குளிர்ச்சி
Sweet	-	இனிப்பு
Immobility	-	நிலைத்திருத்தல்
Solid	-	கெட்டி
Calmness	-	சாந்தம்
Bitter	-	கசயுத்

#### **Qualities of aggravated Pitham:**

- Yellowish tinge of eyes, skin, urine and stool.
- Excessive thirst and appetite.
- Burning sensation all over the body.
- Decrease in sleep.

#### **Qualities of reduced Pitham:**

- Decrease in normal colour of the skin
- Loss of appetite
- Chillness
- Affecting the normal growth of Kabha humour

#### **Natural properties of pitham:**

"பசிதாகம் ஓங்கொளிகண் பார்வைபண் டத்து  
ருசிதெரி சத்திவெம்மை வீரம் - உசித  
மதிகூர்த்த புத்திவனப் பளித்துக் காக்கும்  
அதிகாரி யாங்கா னழல்."

- உடல் தத்துவம்

- Seripithal (Digestion)
- Vanmai (Strong)
- Vemma (Hot)
- Menmai (Softness)
- Paarvai (Sight)
- Pasi (Hunger)
- Neervetkai (Thirst)
- Suvai (Taste)
- Oli (Brightness)
- Ninaippu (Thought)
- Arivu (Knowledge)

### **Physiological Functions of Pitham:**

1. Increasing the body's temperature.
2. Giving red or yellow tinge to the body.
3. Raising the body temperature during digestion and assimilation.
4. Produces perspiration, giddiness.
5. Raising the volume of blood and its expulsion.
6. Gives yellow stain to skin, eye, motion and urine.
7. Anger, irresponsible, immobile, thoughtfulness, emaciation.
8. Feeling of irritation, excitement.
9. All tastes are found to be sour, bitter.

### **Types of Pitham:**

"ஆக்கனல் வண்ணவெரி யாற்றலங்கி யொள்ளொளித்தீ  
நோக்கழலாம் பித்தமைந்த நூதனமா- யாக்குமொழி  
பாசகமி ரஞ்சகஞ் சாதகம் ராசகமா  
லோசக மென்றிடுமோ லோ."

- உடல் தத்துவம்



1. அனலம் [Analam] - Gives appetite and helps digestion.
2. பிராசகம் [Prasagam] - Gives complexion to the skin.
3. இரஞ்சகம் [Ranjagam] – Enriches the Colour of the blood.
4. ஆலோசகம் [Aalosagam] - Brightens the eye.
5. சாதகம் [Sathagam] - Controls the whole body.

**Relationship of Pitham with taste:**

Salt	-	Water + Fire
Sour	-	Earth + Fire
Pungent	-	Air + Fire

Salt, sour and pungent tastes increase Pitham, since they are formed by fire (heat).  
So they possess Veppa Veeriyam.

"புளிதுவர் விஞ்சுங்கறி யார்பூரிக்கும் வாதம்  
ஒளியுவர் கைப்பேறில் பித்துச்சீறும் - கிளிமொழியே  
கார்ப்பினிப்பு விஞ்சிற் கபம்விஞ்சு ஞ்சட்டிரதச்  
சேரப் புணர் நோயனுக்காதே."

- கண்ணுசாமியம்.

Astringent, sweet and bitter tastes neutralize Pitham, since they do not contain Agni (heat). Hence they possess Seedha Veeriyam.

Astringent	-	Earth + Air
Sweet	-	Earth + Water
Bitter	-	Space + Air

"பித்தமதி கரிப்பின் பேசும் பரிகாரம்  
சுத்தத் துவரோடு சொல்லிணிப்புச் சத்தாகும்  
கைப்புச் சுவையே கருதுவதன் வீறு  
எய்ப்படையு மென்றுரைத்தா ரிங்கு."

-கண்ணுசாமியம்

**Aggravation of Pitham in daily routine:**

Pitham is raised at the time of 10 a.m to 2 p.m and 10 p.m to 2 a.m.

"காலையில் வாதநாடி கடிகையில் பத்தாகும்

பாலையில் பித்தநாடி பகருச்சி பத்தாகும்

மாலையாம் சேத்தும நாடி மதிப்புடன் பத்தாகும்

வாலையா மனோன்மணிக்கு வகுத்துமே தொகுத்ததாமே."

- வைத்திய சார சங்கிரகம்.

**Aggravation of pitham in week days:**

If pitha gets aggravated at morning hours of Sunday, Tuesday, Saturday and Krishna patcham Thursday, the vigour and vitality of body is maintained.

**Seasonal influence on Pitha humour:****Thannilai Valarchi:****Definition:**

Provoked kutram in its own locations is called Thannilai Valarchi. It can be perceived by hatefulness of the things, which are causing Thannilai Valarchi and likeliness of the things which are possessing opposite properties.

**Season:**

Pitham gets Thannilai Valarchi during Kaarkaalam (Avani to Purattasi ie; Aug16-Oct 15)

**Vetrunilei Valarchi:****Definition:**

Provoked kutram to other locations is called Vetrunilei Valarchi. It can be perceived by signs and symptoms of the affected kutram and the pathological conditions of the udal thathukkal.

**Season:**

Pitham gets Vetrunilei Valarchi during Koothirkaalam (Ayppasi to Kaarthigai ie; Oct16-Dec 15)

**Thannilai Adaithal:****Definition:**

Provoked kutram neutralizing its own property is called Thannilai adaithal.

**Season:** Provoked pitham neutralizes during Munpani kaalam (Margazhi to Thai ie; Dec 16-Feb15).

**PHYSIOLOGICAL ASPECTS OF SENNEER THATHU [BLOOD]**

Blood is the connective tissue of the body. It reflects the changes that occur in every cell. The blood is the combination of various elements like Venthavalam, Senthavalam, Prakruthi mayai, Pranavayu and Neer. Senthavalam moves like a worm in blood. It is mentioned in the following verses;

"மேவிய புன்மயிர்த் தொகையோ, அம்மயிர்  
பாவிய தோலின் பரப்போ, தோலிடைப்  
புகலிட்டுப் பொதிந்த புண்ணோ, புண்ணிடை  
ஊறும் உதிரப் புணலோ, கூறு செய்து  
இடையிடை நிற்கும் எலும்போ, எலும்பிடை  
முடைகெழு மூளை விழுதோ, வழுவுத்து  
உள்ளிடை யொழுகும் வழும்போ, மெல்ல நின்று  
ஊறும் புழுவின் ஒழுங்கோ, நீரிடை  
வைத்த மலத்தின் குப்பையோ, வைத்துக்  
கட்டிய நரம்பின் கயிறோ, உடம்பிற்குள்  
பிரியா தொறுக்கும் பிணியோ, தெரியாது  
இன்னது யான் என்று அறியேன் என்னை."

-பட்டினத்தார் [திருவிடைமருதூர் மும்மணிக்கோவை -13]

**Nourishment of Senneer:**

Of the seven body constituents, **Senneer** is placed in second order next to saram. This is stated by **Thirumoolar** as follows,

"இரத முதலான ஏழ்தாது மூன்றின்  
உரிய தினத்தின் ஒருபுற் பணிபோல்  
அரியதுளி விந்து வாகுமேழ் மூன்றின்  
மருவிய விந்து வளருங்கா யத்திலே"

- திருமந்திரம்-1897

During the process of digestion in our body, Saaram or Rasa thathu (Chyle) is nourished on the first day. From saaram, Senneer (blood) is nourished on the second day. From senneer, Oon (muscle) is nourished on the third day. From oon, Kozhuppu (fat) is nourished on the fourth day. On the fifth day, Enbu (bone) is nourished from kozhuppu. From enbu, Moolai (bone marrow) is nourished on the sixth day. From moolai, Sukkilam (sperm) or Suronitham (ovum) is nourished on the seventh day. As saaram and senneer are the primary important thathus of the body, they get deranged themselves followed by affection of other thathus.

In seya kamaalai noi, saaram , senneer, and suronitham thathus are mainly affected.

### 1. Naadi (Pulse)

உடலில் உயிர் தரித்திருப்பதற்கு காரணமான சக்தி எதுவோ அதுவே தாது  
அல்லது நாடி எனப்படும்.

-நோய் நாடல் நோய் முதல் நாடல்

There are three vital naadi viz, Vatham, Pitham, Kabham present in our body, as mentioned in the following poem,

"தெளிந்திவிட்ட நாடியது ஞானம் போலே  
சிறப்பான புரிமூன்று மொன்றாய்க் கூடி  
மொழிந்திட்ட வாதபித்த சிலேற்பன மென்று  
முன்கையில் பூண்டிருக்கு முறைமையாக."

- சதக நாடி

Vatha, Pitha and Kabha naadi are in the ratio of 1:1/2:1/4 proportion in normal condition. This is stated as follows,

"வழங்கிய வாதம்மாத்திரை யொன்றாகில்  
தழங்கிய பித்தந் தன்னிலரை வாசி  
அழங்குங் கபந்தா னடங்கியே காலோடில்  
பிறங்கிய சீவர்க்குப் பிசுகொன்று மில்லையே."

- குணவாகடம்

By combination of the above said three naadi, six thontha naadi are formed. They are Vathapitham, Vathakabham, Pithavatham, Pithakabham, Kabhavatham and Kabhapitham. This is stated as follows,

"தானென்ற வாதமாத் திரைதா னிரண்டு  
தப்பாது பித்தமது தானொன் றேறில்  
வேனென்ற வாதபித்த தொந்திப்பாகும்  
-----

பதினெண்சித்தர் நாடி

Naadi is responsible for the existence of life. It is a suitable diagnostic tool used by Siddhars. It is recognised as one of the principle means of diagnosis and prognosis of the disease from time immemorial.

## NAADI

### 1. Pitha Naadi:

"ஆமேதான் யத்தி சுரம் பாண்டு சோகை  
ஆழான விடச்சுரமும் பிரமே கந்தான்  
போமேதான் காமாலை பித்தவெட்டை  
பொல்லாத பாண்டுடனே சிவந்த நீராம்  
தேகமேதான் சிவப்பாயு மஞ்சளாயுஞ்  
சிறுசிறுத்து இருண்டு வரும் குழிவிழுந்து  
நாமேதான் சொன்னோமே பித்தக்கூறு  
நவின்றிட்டார் வாசமுனி நவின்றிட்டாரே."

- அகத்தியர்

## 6. Pitha Vaatha Naadi:

"சிறப்பான பித்தத்தில் வாத நாடி  
சேரிலுந் தாதுநட்ட முதிர் பீடை  
-----"

- சதக நாடி

### SEYA KAMAALAI

சய நோய்:

சாரங் கெட்டு உடல் நாளுக்கு நாள் குன்றல்

- நோய்முதல் நாடல் திரட்டு-இரண்டாம் பாகம்-ப.எண்:151

காமாலை:

பித்த மிகுதியால் ஏற்படும் நோய்களின் பொதுப்பெயர்

-Pals dictionary Page no: 196

### ACCORDING TO BALAVAGADAM

1. ஊதுகாமாலை
2. மஞ்சள் காமாலை
3. வரட்காமாலை

#### 1. ஊதுகாமாலை

ஊதுகா மாலைக் குணங்களோ  
ஊதி முகமுங் காலதைக்கும்  
பாதி சாமம் பசியெடுக்கும்  
புசித்த வுடனே மந்திக்கும்  
சீதஞ் சிறுத்து வயிறுவிடும்  
சிந்தை மயக்க முண்டாம்  
காது மடைக்கு மிளைப்புண்டாங்  
காமாலை யூதற் குணமிதுவே

## 2. மஞ்சள் காமாலை

கண்ணுடன் சிறுநீர் நாக்கு  
கணக்கவே மஞ்சள் போலாம்  
எண்ணிய சுரங்கள் வாந்தி  
யெடுத்திடு மயக்க மூதல்  
வண்ணமாய் மூக்கி நீரும்  
வடித்திடும் வயிற்று னோயாம்  
நண்ணுமஞ் சட்கா மாலை  
நாடிய குணங்கள் தானே

## 3. வரட்காமாலை

கண்பச்சென் றேயிருக்கும் காலோய்ந் துடம்புலரும்  
தண்ணீர்க்கு மெத்தத் தவிக்குமே-பெண்ணே  
இருட்பிழம்பைப் போலு மிளவலுக்குத் தான்கூழ்  
வரட்காமா லைக்குணத்தின் வாறு

### ACCORDING TO YUGIMUNI VAITHIYA KAVIYAM:

1. மஞ்சள் காமாலை
2. வாத காமாலை
3. பித்த காமாலை
4. சேத்தும காமாலை
5. செய காமாலை
6. ஊதுகாமாலை
7. வறள்காமாலை

### மஞ்சள் காமாலை:

கண்ணும்முகமும் உடல்தானும் கரைந்தே மிகவும் மஞ்சளிக்கும்  
உண்ணல்குறைந்து தாகமதாய் உள்ளே சோகம் உண்டாகி  
எண்ணும் சிறுநீர்எய்திடினும் இதுவும் மஞ்சள் நிறமாகும்  
பண்ணும்மஞ்சட் காமாலை பகரும்குணங்கள் இதுவாமே

### சேத்தும காமாலை:

இருமலும்யிளைப்புமாகி யினிதுடல் அதைத்துவாடும்  
கருகியே முகமும்கண்ணும் கால்கையும் வெளுத்து மேல்நோம்  
உருகியேதாதும்கெட்டு உறுதியாய் அழற்றலாகி  
செருமியேசேத்துமத்தில் சேர்ந்த காமாலையாமே

### பித்த காமாலை:

முகமும்கண்ணும் மிகவெளிரி முற்றும் உடல்தான் கறுகறுத்து  
அகமும் தடித்து வாய்கைத்து அசனம் வெறுத்துயிளைப்பெடுத்து  
நகமும்வெளுத்து நாவறண்டு நீரும்மலமும் சிவந்து விழும்  
சிகைமேல் பித்தகாமாலை செய்யும்குணங்கள் இதுவாமே

### ஊது காமாலை:

அடிவயிறது கனத்து அகன்றுமெஇய் முகம்வெளுத்து  
திடில் எனமார்பும்வற்றித் தேகமும்தலை திமிர்த்து  
கடுகியே அசனம் செல்லா காதுகள்வெடித்துக் காணும்  
உடைதனில் அழகாம்மாதே ஊதுகாமாலை ஆமே



### செய காமாலை:

"முகம்தான் வீங்கிக் கண்வெளுத்து முச்சம் எடுத்து முட்டதுவாய்  
அகம்தான் துடித்து நாவறண்டு அணுகும் தாது கெட்டிருக்கும்  
மிகவும் அசனம் செல்லாது மேனி வறண்டு வெளுப்பேறும்  
சிகையே தூக்கி அடித்தாற் போல செய காமாலை எனலாமே"

### வறள் காமாலை:

காலும்வெளுக்கும் முகம்வெளுக்கும் கையும்வெளுக்கும்கால் தவறும்  
நீலநிறமாம் உடலெங்கும் நீர்தான்மிகவும் சிவந்திருக்கும்  
சூலைநோக்காடெனக்குத்தும் சோறும்வெறுப்பாம் நலமின்றி  
மாலைக்கண்ணாய் வடிவுசெய்யும் வறட்காமாலை குணம் இதுவே

### வாத காமாலை:

அங்கமும் முகமும்கண்ணும் அதைத்துடன் ந்வெளுப்பு தோன்றி  
தங்கிய தலைகனப்பாய்ச் சகிக்கொணாமலமும்சிக்கி  
எங்குமே உடல்தான்நொந்து யிளைப்புடந்தியக்கமுண்டாய்  
மங்கிடும்மெய்யும்தானே வாதகாமாலை ஆமே

## 6. PATHOLOGY OF SEYA KAMAALAI

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The basic constitution of the body is made up of 96 Thathuvams. Due to diet and other activities 96 Thathuvams get deranged and result in diseases, either pertaining to body or mind.

### 6.1. DERANGED 96 THATHUVAS ARE AS FOLLOWS

#### 1. AYMBOOTHAMS (FIVE ELEMENTS)

- |    |       |   |   |
|----|-------|---|---|
| 1. | Vaayu | - | Dyspnoea on exertion                            |
| 2. | Neer  | - | Decreased blood volume, Menorrhagia             |
| 3. | Thee  | - | Excessive thirst, Giddiness, Complexion changes |

#### 2. IYMPORIGAL(PENTA SENSORS)

- |    |      |   |                    |
|----|------|---|--------------------|
| 1. | Mei  | - | Pallor of the body |
| 2. | Vai  | - | Dryness of tongue  |
| 3. | Eyes | - | Pallor of the eyes |

#### 3. KANMENTHIRIYAM/ KANMAVIDAYAM (MOTOR ORGANS)

- 1.Karuvai: Menorrhagia present

#### 4. ANTHAKARANAM (COMPONENTS OF MIND)

- |           |   |                            |
|-----------|---|----------------------------|
| Manam     | - | Delusion present           |
| Puthi     | - | Difficulty in analysing    |
| Sitham    | - | Reduced ability to achieve |
| Akangaram | - | Indecisiveness present     |

## **5. NAADI (DIFFERENTIAL PULSE PERCEPTION)**

Suzhumunai	-	Menorrhagia present (Moolaathaaram region)
Siguvai	-	Poor appetite
Sangini	-	Menorrhagia present
Kugu	-	Menorrhagia present (Abaanan region)

## **6. AADHAARAM (STATIONS OF SOUL)**

Moolaathaaram	-	Menstrual disturbances present
Manipooragam	-	Water element is attributed to Manipooragam region, poor appetite present.
Anaakatham	-	Fire element is attributed to Anaakatham region, palpitation is present.
Visuthi	-	Difficulty in breathing because air element is attributed to this region.

## **7. MANDALAM (BODY ZONE)**

Thee mandalam – Drowsiness

## **8. EDANAI (AFFINITY)**

Increased affinity for salty, astringent, foods result in derangement of Pitha humour which is the root cause of Seya Kamaalai.

## **9. GUNAM (CHARACTER)**

All the three Gunam people are found to be affected in the study.

## **10. AVATHAI (STATES OF CONCIOUSNESS)**

Urakkam	-	Excessive sleepiness
Perurakkam	-	Drowsiness

### **11. VINAI (ACT)**

Both Vinai got affected in the study.

### **12. PADHINAANGU VEGANGAL ( NATURAL URGES/REFLEXES)**

Pasi	-	poor appetite present
Vaanthi	-	Symptoms of increased Pitham
Thookkam(sleep)	-	Drowsiness
Kottavi (yawning )	-	Tiredness present.
Suronitham	-	Menorrhagia present

### **13.Aasayam:**

Amarvaasayam:	Poor appetite present
Pakirvaasayam:	Reduced absorption present
Suronithavaasayam:	Menorrhagia present

### **14. DERANGED UYIR THATHUKKAL (HUMORAL OR TRIDOSHA PATHOLOGY)**

Panchaboothams manifests in the body as three vital forces,

Vatham

Pitham

Kabham

### **12.a.VATHAM OR VAYU:**

The word Vayu not only implies wind but also comprehends all the phenomenon which come under the function of the central and sympathetic nervous system. Structurally it is the combination of Vayu and Aagaya boothams.

Normally it carries out of respiration, circulation of blood, locomotion, carrying sensory signals and motor signals to and from the brain, micturition, defaecation,

parturition, sensation of hearing, sight, taste etc. It is located in Idakalai, Abanan, Faeces, Spermatic Cord, Pelvic Bones, Skin, Hair, Nerve & Muscle. It is ten types.

In Seya kamaalai, primarily affected Vayukkal are, Piraanan, Abanan, Viyaanan, Samanan, Uthanan, Kirukaran and Devadhathan.

**Pranan(Uyirkaal):**

It resides in the heart and legs to nose and control knowledge ,mind and five objects of sense, useful for breathing. In seya kamaalai, dyspnoea is present, if pranan is affected.

**Abanan(Keezh nokkunkaal):**

It is located in the lower abdomen and extremities. It is responsible for excretion of urine, stools, ejaculation of sperm and menstrual flow. In seya kamaalai, amenorrhoea or menorrhagia are present, when abanan is affected.

**Viyaanan:**

It resides mainly at the heart and responsible for movements of the body and sensation. In seya kamaalai, swelling of the face, pallor of eyes due to affection of viyaanan.

**Samaanan(nadukkal)**

It is located in the stomach, helps for proper digestion and balances the above four vaayus in equilibrium. In seya kamaalai, anorexia and any of the above four vaayus affection are present, when samaanan is affected.

**Uthanan(melnokkukal)**

It is located in the chest and responsible for vomiting, cough and sneezing reflexes. In seya kamaalai, excessive thirst due to affection of uthanan.

**Kirukaran**

It is located in the throat and responsible for salivation, nasal secretion and appetite. In seya kamaalai, anorexia and dryness of mouth are present when kirukaran is affected.

**Devathathan**

Its location is at eruvai and karuvai. It is responsible for laziness, sleep and anger. In seya kamaalai, fatigue and insomnia are present when devathathan is affected.

**12.b.PITHAM**

It is the life energy manifestation of the bootham in the body. It is the metabolic thermal life force of the body. It carries out digestion, absorption, metabolism, and colouration of the blood etc.

Pitham is located in the pirana vayu, bladder, moolaakini, Heart, Umbilical region, abdomen, stomach, sweat, saliva, blood, eyes and skin. As moolaatharam is in the akkini mandalam, any pathological condition here can harm the moolakini and eventually derange the pitha humor. Symptoms are produced when deranged pithams affect the seven thathus and malam.

In seya kamaalai, primarily affected pitham components are

Anar Pitham

Ranjaga pitham

Saathagam

**Anar pitham:**

This gives appetite and helps for digestion. In seya kamaalai, loss of appetite is present when it is affected.

**Ranjaga pitham:**

It gives colour to the blood. In seya kamaalai, pallor of conjunctiva and skin are present when it is affected.

**Saathaga pitham:**

It controls the entire body functions responsible for the activities of the body. In seya kamaalai, inability to do the works properly and sluggishness are present when it is affected.

**Prasagam:**

It gives complexion to the skin. In seya kamaalai, altered skin lusture is present when it is affected.

**12. c. KABAM**

Kabam is constituted by Appu and Pirithivi boothams. It is responsible for Co-ordination and defense mechanism of the body. Kabam is located in Samaanavayu, Semen, Suzhumunai, Blood, Bone marrow, Nose, Chest, Nerve, Bone, Brain, Eyes, and Joints. In seya kamaalai, primarily affected Kabams are,

Avalambagam

Kiletham

**Avalambagam:**

It controls heart, lungs and supports other forms of kabam. In seya kamaalai, dyspnoea is present when it is affected.

**Kilethagam:**

It makes the food wet and helps for digestion. In seya kamaalai, indigestion is present when it is affected.

**13. DERANGED UDAL THATHUKKAL**

Saaram – Fatigue, dyspnoea and tiredness are present

Senneer-Pallor of skin and conjunctiva are present

Oon-Puffiness of the face is present

Suronitham- Menorrhagia or amenorrhoea is present

#### 14. KOSAM (BODY SYSTEMS)

##### (a) Anamaya kosam - Affected

Anamayakosam is affected because 7 Udal thathukkal forming the Kosam are affected.

##### (b) Pranamayakosam – Affected

It is affected because Kanmaindhiriyangal forming this kosam are affected.

##### (c) Manomayakosam - Affected

It is affected because patient will be depressed due to illness.

##### (d) Vignanamayakosam - Affected

It is affected because Gnanaindhiriyangal forming this kosam are affected.

##### (e) Aanandhamayakosam –Affected

It is because patient will be unhappy due to illness.

#### 15. MANIKADAI NOOL

##### ❖ ஒன்பதரை

“ஒன்பது யரையது யுகந்து காண்கையில்  
என்பொடு வடம்பெலாம் வெளுத்துச் சூடதாம்  
துன்படு யிருவிழி காய்ந்து முன்சுரம்  
நன்பது மசனம் விட்டுடலும் வற்றுமே”

##### ❖ ஏழேகால்

“ஏழது காலுங் கண்ணுமிடுப்பினில் வலியுமுண்டாம்,  
மீளவுஞ் சிரசில் பித்த மிகுதி கொண்டிருக்குங்கண்டாய்,  
சூளது வினையினாலே துடரவே பாண்டு முண்டு,  
ஆளது காலும் கையும் சுமந்து நித்திரையும் பாழாம்”



## 7. DIFFERENTIAL DIAGNOSIS

### 1. DISCUSSION OF DIFFERENTIAL DIAGNOSIS BETWEEN SEYA KAMAALAI AND MANJAL KAMAALAI

செய காமாலை

"முகம்தான் வீங்கிக் கண்வெளுத்து மூச்சும் எடுத்து முட்டதுவாய்  
அகம்தான் துடித்து நாவறண்டு அணுகும் தாது கெட்டிருக்கும்  
மிகவும் அசனம் செல்லாது மேனி வறண்டு வெளுப்பேறும்  
சிகையே தூக்கி அடித்தாற் போல செய காமாலை எனலாமே"

According to the text Yugimuni Vaithiya Kaaviyam, the symptoms of Seya kamaalai are given as puffiness of face, pallor of eyes, dyspnoea on exertion, palpitation, thirst, poor appetite, pallor of the body and giddiness.

மஞ்சள் காமாலை

கண்ணும்முகமும் உடல்தானும் கரைந்தே மிகவும் மஞ்சளிக்கும்  
உண்ணல்குறைந்து தாகமதாய் உள்ளே சோகம் உண்டாகி  
எண்ணும் சிறுநீர்எய்திடினும் இதுவும் மஞ்சள் நிறமாகும்  
பண்ணும்மஞ்சட் காமாலை பகரும்குணங்கள் இதுவாமே

As per the text Yugimuni Vaithiya kaaviyam, the clinical features of Manjal kamaalai are yellowish discolouration of the eyes and face, poor appetite, thirst, depression and yellowish micturition.

## SIMILARITIES

செய காமாலை	மஞ்சட் காமாலை
<b>Poor appetite</b>	
அசனம் செல்லாது	உண்ணல் குறைந்து
<b>Thirst</b>	
நாவறண்டு	தாகமதாய்

DISSIMILARITIES	
EXCLUSIVE SYMPTOMS OF SEYA KAMAALAI	EXCLUSIVE SYMPTOMS OF MANJAL KAMAALAI
<p>கண் வெளுத்து Pallor of eyes முகம் தான் வீங்கி Puffiness of face தாது கெட்டிருக்கும் Menorrhagia அகம் தான் துடித்து Palpitation மூச்சும் எடுத்து முட்டதுவாய் Dyspnoea on exertion சிகையே தூக்கி அடித்தாற்போல் Giddiness மேனி வறண்டு வெளுப்பேறும் Pallor of the body</p>	<p>கண்ணும் முகமும் உடல் தானும் கரைந்தே மிகவும் மஞ்சளிக்கும் Yellowish discolouration of the eyes, face and all over the body உள்ளே சோகம் உண்டாகி Depression சிறுநீர் எய்திடினனும் மஞ்சள் நிறமாகும் Yellowish micturition</p>

## 1. DISCUSSION OF DIFFERENTIAL DIAGNOSIS BETWEEN SEYA KAMAALAI AND VATHA PAANDU

செய காமாலை

"முகம்தான் வீங்கிக் கண்வெளுத்து மூச்சும் எடுத்து முட்டதுவாய்  
அகம்தான் துடித்து நாவறண்டு அணுகும் தாது கெட்டிருக்கும்  
மிகவும் அசனம் செல்லாது மேனி வறண்டு வெளுப்பேறும்  
சிகையே தூக்கி அடித்தாற் போல செய காமாலை எனலாமே"

According to the text Yugimuni Vaithiya kaaviyam, the symptoms of Seya kamaalai are given as puffiness of face, pallor of eyes, dyspnoea on exertion, palpitation, thirst, poor appetite, pallor of the body and giddiness.

வாதபாண்டு

"கொள்ளவே வாதபாண்டு ரோகங் கேளாய்  
குடல்புரட்டி யடிவயிறு தான்வ லிக்கும்  
தள்ளவே தாகமொடு பசியு மில்லை  
தழலான சரசரப் பாகத் தானும்  
நள்ளவே நரம்பெல்லாங் கறுப்பு மாகும்  
நடுக்கலொடு கண்சிவப்பு மலபந் தந்தான்  
விள்ளவே தலைவலிக்கு மேனி வீங்கும்  
வெளுப்பாகும் வாதத்தின் பாண்டுதானே.

- யூகிமுனி.

The symptoms of Vatha Paandu are lower abdominal pain, thirst, loss of appetite, dryness of the skin and visible veins due to pallor of the skin, redness of the eyes, constipation, headache, anasarca and pallor of the skin.

## SIMILARITIES

செய காமாலை	வாத பாண்டு
<b>Dyspnoea</b>	
அசனம் செல்லாது	பசியு மில்லை
<b>Fatigue</b>	
சிகையே தூக்கி அடித்தாற்போல்	தலை வலிக்கும்
<b>Pallor of the skin</b>	
மேனி வறண்டு வெளுப்பேறும்	வெளுப்பாகும்
<b>Poor appetite</b>	
அசனம் செல்லாது	பசியு மில்லை

<b>DISSIMILARITIES</b>	
<b>EXCLUSIVE SYMPTOMS OF SEYA KAMAALAI</b>	<b>EXCLUSIVE SYMPTOMS OF VATHA PAANDU</b>
கண் வெளுத்து Pallor of eyes முகம் தான் வீங்கி Puffiness Of Face தாது கெட்டிருக்கும் Menorrhagia அகம் தான் துடித்து Palpitation	குடல் புரட்டி யடிவயிறு தான் வலிக்கும் Lower abdominal pain நடுக்கல் Tremor கண் சிவப்பு Reddish eyes மலபந்தம் Constipation

## DISCUSSION OF DIFFERENTIAL DIAGNOSIS BETWEEN SEYA KAMAALAI AND PITHA PAANDU

செய காமாலை

"முகம்தான் வீங்கிக் கண்வெளுத்து மூச்சும் எடுத்து முட்டதுவாய்  
அகம்தான் துடித்து நாவறண்டு அணுகும் தாது கெட்டிருக்கும்  
மிகவும் அசனம் செல்லாது மேனி வறண்டு வெளுப்பேறும்  
சிகையே தூக்கி அடித்தாற் போல செய காமாலை எனலாமே"

பித்த பாண்டு

"வாமென்ற மேனியெல்லா மஞ்ச ளித்து  
மகாவெளுப்பு உண்டாகி மந்தக் கண்ணாந்  
தாமென்ற தாகமொடு மூர்ச்சை யாகுந்  
தனிவாயில் மிளகுபோற் றானு றைக்கும்  
நேமென்ற நெஞ்சுமுள் தானு முண்டாய்  
நெருக்கியா மூச்சுமுட் டதுவே யாகுங்  
கோமென்ற கிறுகிறுத்து வாய்கைப் பாகுங்  
கிளர்பித்த பாண்டு வெனக் கூறலாமெ."

- யூகிமுனி

Yellowish colouration and pallor of the skin, diminished vision, thirst, fainting, pungent taste like pepper, chest pain, dyspnoea, giddiness and bitter taste.

## SIMILARITIES

செய காமாலை	பித்த பாண்டு
<b>Dyspnoea</b>	
ச்சம் எடுத்து முட்டதுவாய்	நெருக்கியே மூச்சு முட்டதுவே யாகுங்
<b>Fatigue</b>	
சிகையே தூக்கி அடித்தாற்போல்	கோமென்ற கிறுகிறுத்து
<b>Pallor of the body</b>	
மேனி வறண்டு வெளுப்பேறும்	மகா வெளுப்பு உண்டாகி
<b>Thirst</b>	
நாவறண்டு	தாகமொடு

## DISSIMILARITIES

EXCLUSIVE SYMPTOMS OF SEYA KAMAALAI	EXCLUSIVE SYMPTOMS OF PITHA PAANDU
கண் வெளுத்து Pallor of eyes முகம் தான் வீங்கி Puffiness Of Face தாது கெட்டிருக்கும் Menorrhagia அசனம் செல்லாது Poor Appetite அகம் தான் துடித்து Palpitation	மந்த கண்ணாம் Dull vision நோமென்ற நெஞ்சுமுள் தானுமுண்டாய் Angina வாய் கைப்பாகும் Altered taste மூர்ச்சையாகும் Coma மேனியெல்லாம் மஞ்சளித்து Yellowish tint of the body

## DISCUSSION OF DIFFERENTIAL DIAGNOSIS BETWEEN SEYA KAMAALAI AND SETHTHUMA KAMAALAI

செய காமாலை

"முகம்தான் வீங்கிக் கண்வெளுத்து மூச்சும் எடுத்து முட்டதுவாய்  
அகம்தான் துடித்து நாவறண்டு அணுகும் தாது கெட்டிருக்கும்  
மிகவும் அசனம் செல்லாது மேனி வறண்டு வெளுப்பேறும்  
சிகையே தூக்கி அடித்தாற் போல செய காமாலை எனலாமே"

சேத்தும காமாலை

இருமலும்யிளைப்புமாகி யினிதுடல் அதைத்துவாடும்  
கருகியே முகமும்கண்ணும் கால்கையும் வெளுத்து மேல்நோம்  
உருகியேதாதும்கெட்டு உறுதியாய் அழற்றலாகி  
செருமியேசேத்துமத்தில் சேர்ந்த காமாலையாமே

### SIMILARITIES

செய காமாலை	சேத்தும காமாலை
<b>Pallor</b>	
கண் வெளுத்து	கண்ணும் கால் கையும் வெளுத்து
<b>Menorrhagia</b>	
தாது கெட்டிருக்கும்	தாது கெட்டு

DISSIMILARITIES	
EXCLUSIVE SYMPTOMS OF SEYA KAMAALAI	EXCLUSIVE SYMPTOMS OF SETHTHUMA KAMAALAI
<p>முகம் தான் வீங்கி</p> <p>Puffiness Of Face</p> <p>அசனம் செல்லாது</p> <p>Poor Appetite</p> <p>அகம் தான் துடித்து</p> <p>Palpitation</p> <p>மூச்சும் எடுத்து முட்டதுவாய்</p> <p>Dyspnoea on exertion</p> <p>சிகையே தூக்கி                      அடித்தாற்போல்</p> <p>Giddiness</p> <p>மேனி வறண்டு வெளுப்பேறும்</p> <p>Pallor of the body</p>	<p>இருமல் இளைப்புமாகி</p> <p>cough</p> <p>உடல் அதைத்து வாடும்</p> <p>Body becomes oedematous and become weak</p> <p>கருகியே முகமும்</p> <p>Darkish complexion of face</p>



## **8.MODERN ASPECTS**

### **BLOOD:**

#### **DEFINITION:**

Blood is a complex fluid which circulates rapidly in closed system of blood vessels.

The blood is the most precious fluid in the body. It is also considered as fluid of growth, fluid of health. Blood is one of the extracellular body fluids, which circulate in a closed system of blood vessels. The constant nature of the blood is one of the important haemostatic conditions of the body.

Blood contains iron in the form of Haemoglobin and also as cytochromes etc. Any form of iron deficiency cause anaemia.

#### **FORMATION OF BLOOD:**

Blood is a specialized fluid connective tissue, which acts as a major transport system within the body. The formation of the cells of blood begins very early in embryonic life (before somites have appeared) and continues throughout life. Blood formation is specially rapid in the embryo to provide for increase in blood volume with the growth of the embryo.

In the third week of embryonic life, formation of blood vessels and blood cells is first seen in the wall of the yolk sac, around the allantoic diverticulum and in the connecting stalk. In these situations, clusters of mesodermal cells aggregate to form blood islands.

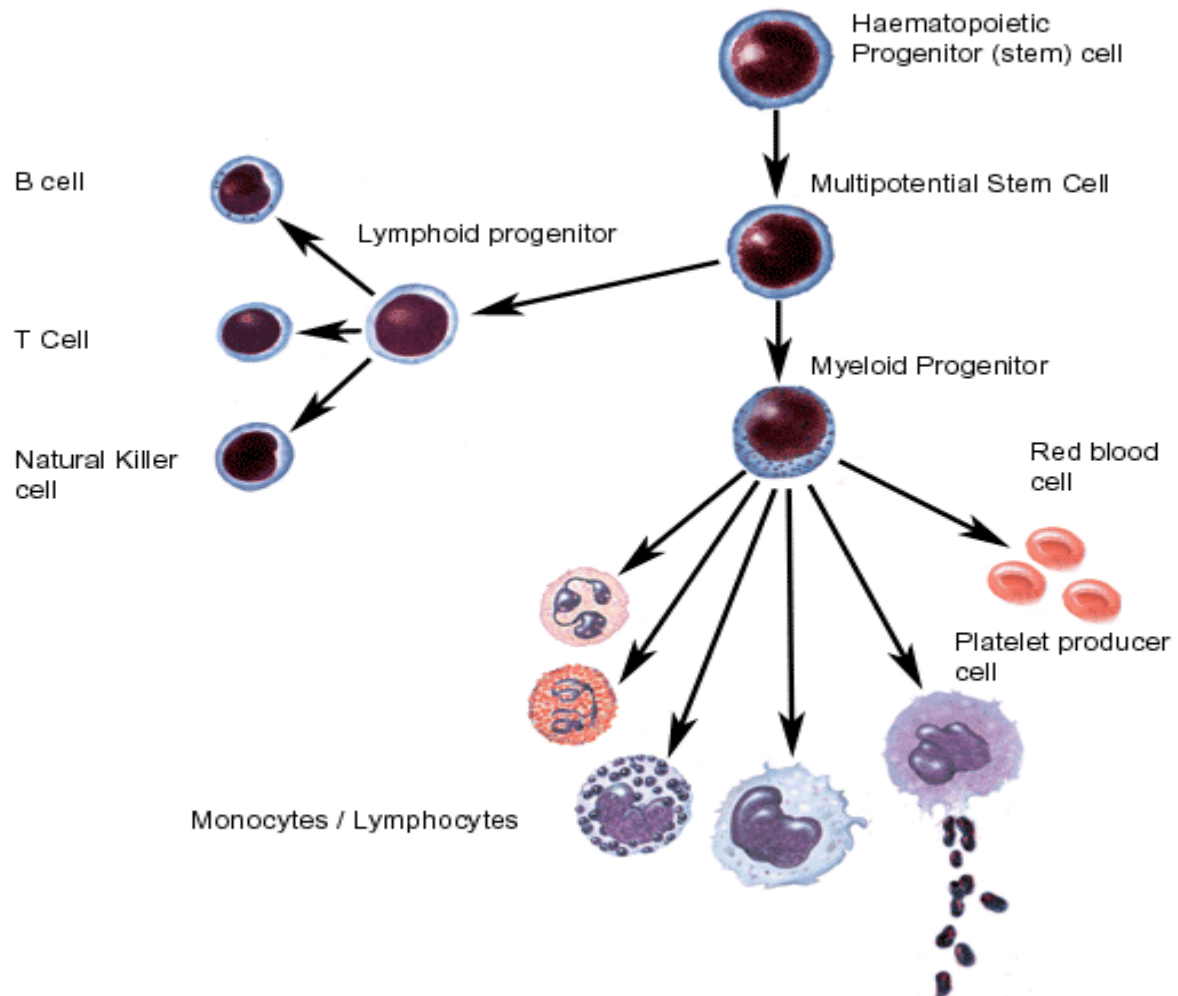
These mesodermal cells are then converted to precursor cells (haemangioblasts) which give rise to blood vessels and blood cells. Cells, which are present in the centre of the blood island, form the precursors of all blood cells (haematopoietic stem cells). Cells at the periphery of the island form the precursors of blood vessels (angioblasts).

Blood cells arising in the blood islands of the yolk sac are temporary. They are soon replaced by permanent stem cells, which arise from the mesoderm surrounding the developing aorta. These stem cells first form colonies in the liver. In the late embryonic period the formation of blood starts in the liver, which remains an important site of blood cells formation till the sixth month of intrauterine life.

Almost near the middle of prenatal life, definitive haematopoietic stem cells from the liver migrate to colonize the bone marrow. At the time of the birth, blood formation is mainly in the bone marrow. Here totipotent haemal stem cells give rise to pluripotent lymphoid stem cells and pluripotent haemal stem cells. These stem cells form colony forming units. Cells of one particular colony forming unit are committed to differentiate only into one line of blood cells, i.e. erythrocytes, megakaryocytes, granulocytes, monocytes, macrophages and lymphocytes.

In the case of erythrocytes stem cells divide so rapidly that they seem to burst. They are therefore called burst forming units (BFU). Their daughter cells then form colony forming units. In the adult, the main sites of blood formation are bone marrow, lymph nodes, thymus and spleen.

As stated above the precursors of the various types of blood cells are generally regarded as being of mesodermal in origin. However, blood forming cells differentiating in relation to the wall of the yolk sac and probably in the liver, may be endodermal in origin.

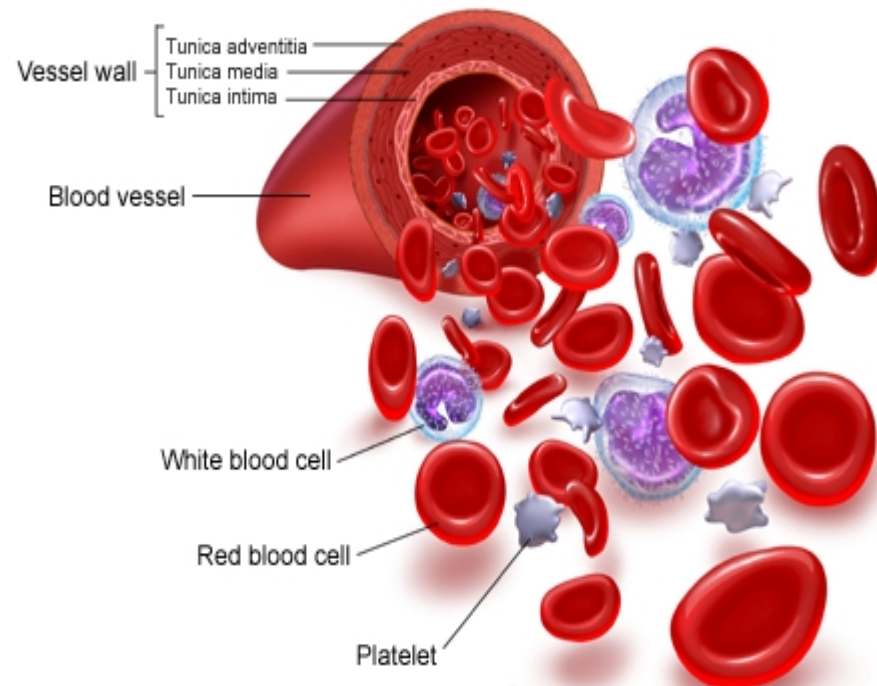


### PROPERTIES OF BLOOD:

1. **Colour** - Blood is an opaque fluid and it is red in colour.
2. **Volume** - The Volume of blood in a normal adult is 5 litres.
3. **Reaction and PH** - Blood is slightly alkaline and its pH is 7.4.
4. **Specific gravity**
  - The specific gravity of total blood - 1.052 – 1.061
  - The specific gravity of blood cells - 1.092 – 1.101
  - The specific gravity of plasma - 1.022 - 1.026
5. **Viscosity** - Blood is five times more viscous than water.

## COMPOSITION OF BLOOD:

Blood consist of a solid portion and a fluid portion. The solid portion constitutes the blood cells namely RBC, WBC, and platelets and the fluid portion is plasma. The cells form 45% and the plasma forms 55% of the total volume of the blood.



## FUNCTIONS OF BLOOD

### Nutrient Function:

Nutritive substances like glucose, amino acids, lipids and vitamins derived from digested food are absorbed from gastro intestinal tract and carried by blood to different parts of the body for growth and production of energy.

### Respiratory Function:

Transport of respiratory gases is done by the blood. Blood conveys oxygen from the alveoli of lungs to the tissues for the oxidation of food and production of energy. The carbon-di-oxide formed in the tissues as a result of this process is carried to the lungs, where it is exhaled.

**Transport of hormones and enzymes:**

The hormones and some of the enzymes are carried by blood to different parts of the body from the source of secretion.

**Excretory Function:**

Waste products formed during various metabolic reactions in the tissues are removed by the blood and carried to the excretory organs like kidney, skin, liver etc.,

**Regulation of body temperature:**

Because of high specific heat of blood, it is responsible for maintaining the thermoregulatory mechanism in the body i.e., the balance between heat loss and heat gain in the body.

**Regulation of acid – base balance:**

The plasma proteins and haemoglobin acts as buffer and helps in the regulation of acid-base balance.

**Regulation of water balance:**

Blood maintains the water content of the tissues and helps in the regulation of fluid in different compartments of the body.

**Regulation of osmotic pressure:**

The plasma proteins play the major role in regulating the osmotic pressure of tissue fluids.

**Defensive Function:**

Blood has WBCs, Gamma globulins which have phagocytic action. They also transport protective substances such as anti-bodies, anti-toxins and lysins.

**Storage Function:**

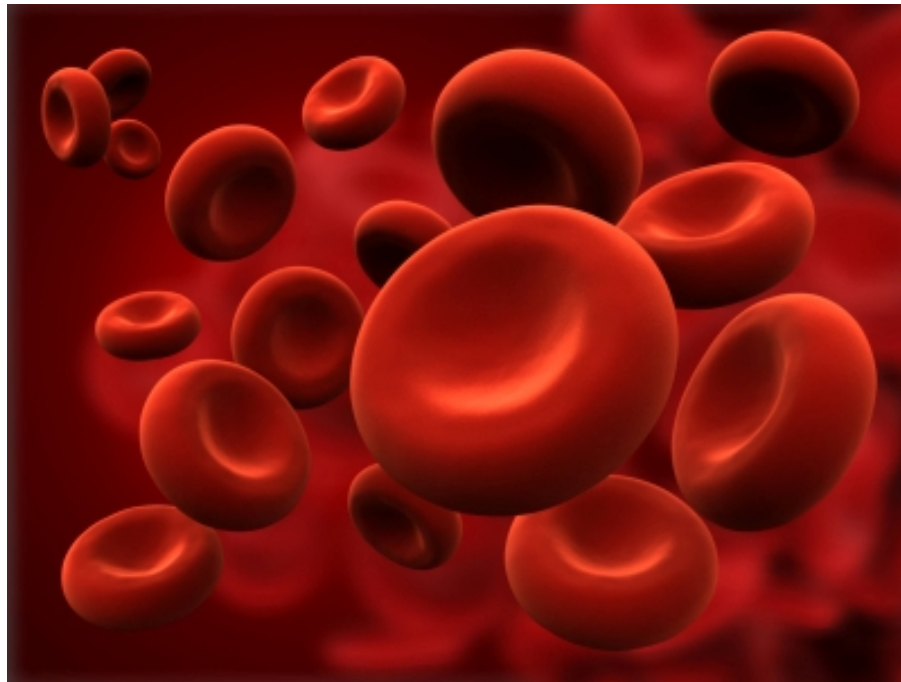
Water and some important substances like protein, glucose, sodium and potassium are constantly required by the tissue. Blood serves as a readymade source for these substances and these substances are taken from the blood during conditions like starvation, fluid loss, and electrolyte loss.

## THE RED BLOOD CELLS OR ERYTHROCYTES:

The erythrocytes of most of the higher animals including man are circular, non-nucleated, biconcave discs.

Diameter	: $7.2\ \mu$ ( $6.9 - 7.4\ \mu$ ).
Thickness	: At the periphery $2.2\ \mu$ and at the center $1\ \mu$ thickness.
Shape	: Dumb bell
Surface Area	: $120\ \text{square}\ \mu$
Volume	: $85 - 90\ \text{Cubic}\ \mu$

## RED BLOOD CELLS



## PROPERTIES OF RBC:

### Rouleaux formation:

When blood is taken out, the red blood cells pile up one above another like the pile of coins. This property of red blood cell is called *rouleaux* formation.

### Specific Gravity:

The specific gravity of red blood cell is 1.092 to 1.101.

**Packed Cell volume:**

When the blood is collected in a centrifuge tube along with proper anticoagulant and centrifuged for a period of 30 minutes at a speed of 3000 rpm the red blood cells settle at the bottom of the tube leaving the clear plasma at the top. The red blood cells form 45% of the total blood. This is called *the packed cell volume or hematocrit*.

**Suspension Stability:**

During circulation the red blood cells remain suspended uniformly in the blood. This property is called the suspension stability.

**ERYTHROPOIESIS**

Erythropoiesis is the process by which the origin, development and maturation of erythrocytes occur. In the bone marrow, there are cells called uncommitted pluripotent hemopoietic stem cells because these cells are not designed to form a particular type of blood cell. When these cells are designed to form a particular type, the stem cells are called committed pluripotent hemopoietic stem cells.

The different committed stem cells will produce colonies of specific types of blood cells. Then a committed stem cell that produces colony forming unit blast (CFU - B) and then erythrocytes are produced from these CFU – B and are called colony forming unit – erythrocytes (CFU-E).

Growth and reproduction of the different stem cells are controlled by multiple proteins called growth inducers. Another set of proteins are called differentiation inducers whose function is differentiation of the cells.

**SITES OF ERYTHROPOIESIS**

In the early few weeks of embryonic life - yolk sac

During the middle trimester of gestation - Liver, Spleen, lymphoid organ

Later part of gestation and after birth - Red bone marrow and liver

Up to the age of 5 - Red bone marrow of all the bones

After the age of 5 to adult - Red bone marrow of long bones and flat bones

## STAGES OF ERYTHROPOIESIS

### Stage I – Pro erythroblast (Megaloblast)

This early cell is large (15-20)  $\mu$ . The cytoplasm is basophilic staining with a deep violet blue and there is a pale-staining crescent near the nucleus and the cell contains no haemoglobin. The nucleus is about 12 $\mu$  and occupies about three quarters of the cell volume and the chromatin forms a fine stippled reticulum.

### Stage II – Early Normoblast (Early erythroblast)

This cell is smaller than pro erythroblast diameter 15 $\mu$ . It shows active mitosis. The nucleoli have disappeared. Condensation of chromatin network occurs. The cytoplasm is basophilic. So this cell is also called **basophilic erythroblast**.

### Stage III – Intermediate Normoblast (Late erythroblast)

This cell is smaller (10-15)  $\mu$  and shows active mitosis. Nucleus is still present. Chromatin network shows further condensation. Haemoglobin begins to appear and its eosinophilic staining give the cytoplasm a polychromatic appearance.

### Stage IV – Late Normoblast (Normoblast)

Mitosis has now ceased and the diameter of the cell is 8 – 10  $\mu$ . The nucleus becomes very smaller and the condensed chromatin assumes a “**cart wheel**” **appearance or ink spot** and finally becomes deeply stained in a uniform manner. Quantity of haemoglobin increases. Cytoplasm becomes almost acidophilic. So the cell is called **Orthochromic erythroblast**. In this cell, the nucleus disintegrates and disappears. The process is called **pyknosis**.

### Stage V – Reticulocyte

It is slightly larger than matured red blood cells. Cytoplasm contains reticular network. It is basophilic in nature. During this stage, the cells enter the blood through the capillary membrane by means of a process called **diapedesis**.



## **MATURED ERYTHROCYTE**

Reticular network disappears. Matured red blood cell is biconcave; smaller in size; diameter of 7.2 microns. It is with haemoglobin and without nucleus.

It takes 5 days for the development of reticulocyte from proerythroblast. The reticulocyte takes two more days to become matured red blood cells.

## **CHANGES DURING ERYTHROPOIESIS:**

Four important stages occurring are,

- Reduction in size of the cell
- Disappearance of nucleoli and nucleus
- Appearance of Haemoglobin
- Change in the staining properties of the cytoplasm

## **REGULATION OF ERYTHROPOIESIS:**

1. Tissue oxygenation is the basic regulator of red blood cell production. Any condition that causes the quantity of oxygen transported to the tissues to decrease (Hypoxia) ordinarily increases the rate of red blood cell production. Hypoxia occurs in conditions like very high altitudes, anaemia, prolonged cardiac failure, cyanotic heart disease and lung disease.
2. Erythropoietin is a circulatory hormone, formed mainly in kidneys, increase mainly during hypoxia. It stimulates the production of proerythroblast from hemopoietic cells in the bone marrow.
3. Epinephrine, norepinephrine and several of the prostaglandins stimulate erythropoietic production.

### **LIFE SPAN AND FATE OF RED BLOOD CELLS:**

Average life span of red blood cell is about 120 days. The senile red blood cells are destroyed in reticulo endothelial system.

When the cells become older, the cell membrane become more and more fragile. The diameter of the capillaries is less or equal to that of red blood cells. The younger red blood cells can pass through the capillaries easily, however the older cells become fragile. So these cells are destroyed while trying to squeeze through the capillaries. The destruction occurs mostly in the capillaries of spleen because the splenic capillaries have a thin lumen. So the spleen is usually called '**grave yard**' of red blood cells. Daily 10% of red blood cells, which are senile, get destroyed in normal young healthy adults.

### **HAEMOGLOBIN**

Haemoglobin is a conjugated protein consisting of iron containing pigment protein called **Haem** (4%) and a protein of the histone class called **globin** (96%). Haem is an iron containing porphyrin known as iron protoporphyrin IX (metallo porphyrin). Therefore haemoglobin is an iron + porphyrin + globin compound.

Four haem molecules are attached to the globin molecules to form one molecule of haemoglobin. The molecular weight of haemoglobin is 68,000. This high molecular weight and consequently great size of the molecules are the cause of the colloidal nature when they are dispersed in water. It is a chromoprotein, forming 95% of dry weight of red blood cell and 30 to 34 % of wet weight.

### **NORMAL VALUES:**

- ❖ Adult male: 14-18 grams
- ❖ Adult female: 11-15 grams

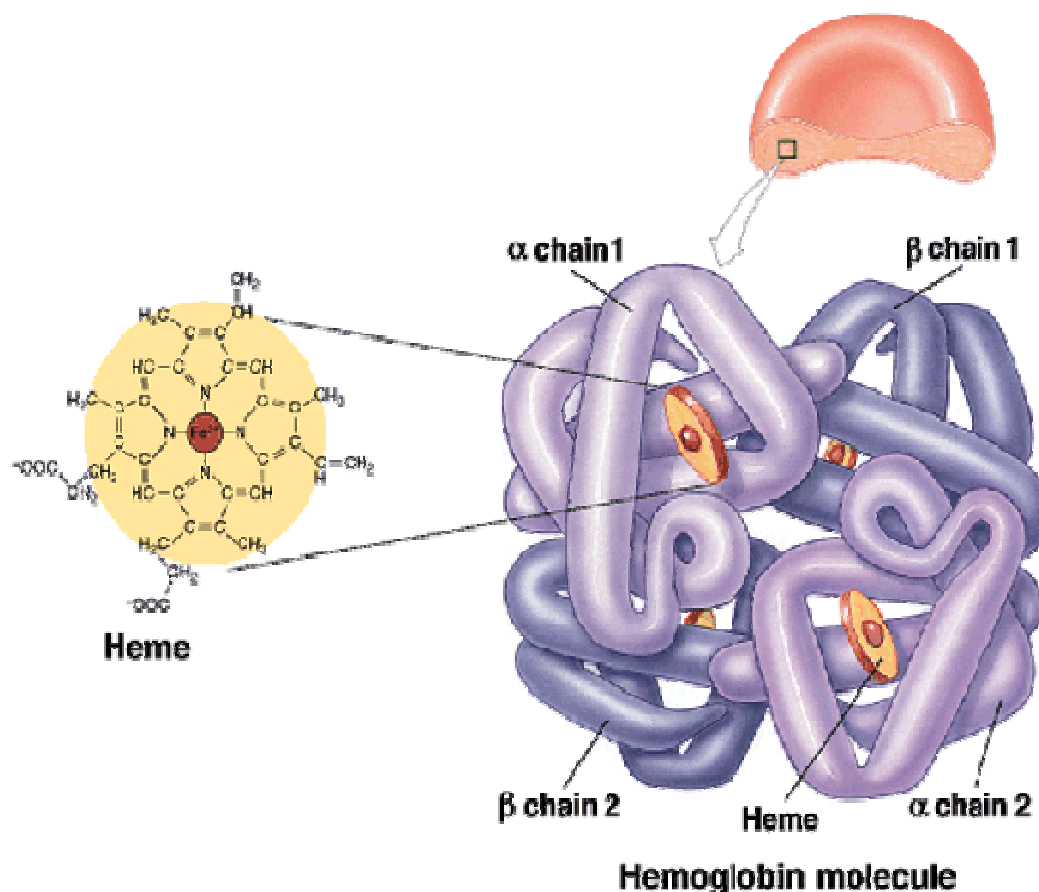
### **VARIETIES OF HAEMOGLOBIN:**

Haemoglobin is of two types namely.

1. Adult haemoglobin – HbA
2. Fetal haemoglobin – HbF

## FORMATION OF HAEMOGLOBIN:

1. 2 Succinyl co-A + 2 glycine → 4 Pyrrole
2. 4 Pyrrole → Protoporphyrin IX
3. Protoporphyrin IX  $\text{Fe}^{++}$  → Haeme
4. Haeme + polypeptide → Haemoglobin chain (Alpha or Beta)
5. 2Alpha + 2 Beta chains → Haemoglobin A



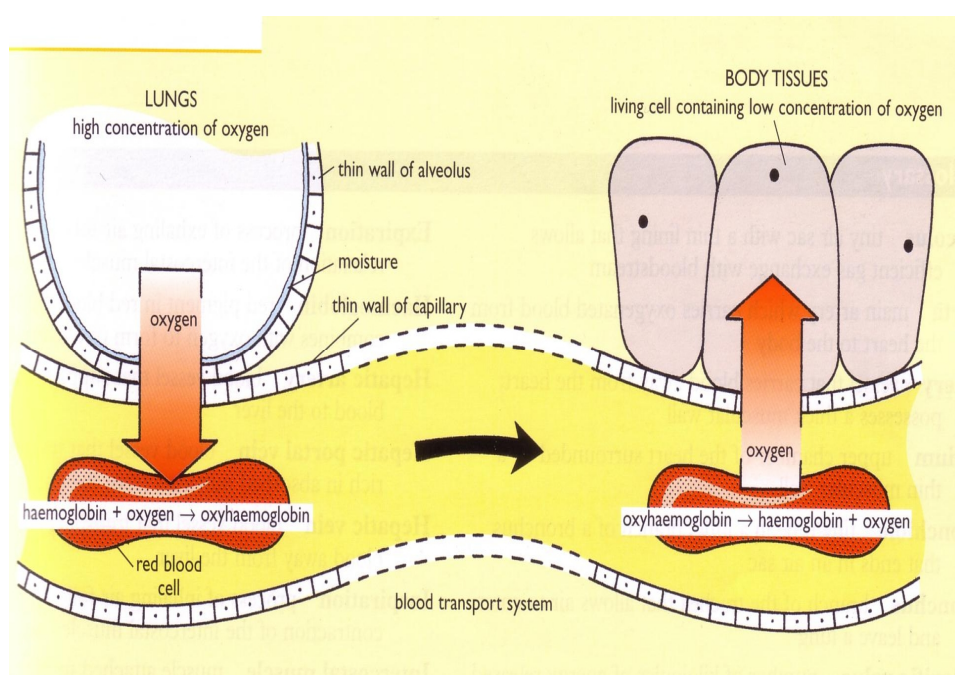
## PROPERTIES OF HAEMOGLOBIN:

### Buffering Capacity:

Haemoglobin is an effective buffer. Its isoelectric point is 6.8. The buffering capacity of haemoglobin is due to the presence of large number of histidine residues in the globin fraction. It is estimated that a molecule of haemoglobin has 35 histidine residues

## Transport of oxygen:

The physiological importance of haemoglobin is due to its capacity to combine reversibly with oxygen. It combines with haemoglobin to form oxyhaemoglobin readily, at high pressure as existing in the lungs. Oxyhaemoglobin readily dissociates, at low partial pressure as prevailing in the tissues. This property of haemoglobin provides an effective and excellent system for the transport of oxygen from the atmosphere (lungs) to the cells of the body.



## Haem-Haem interaction:

The haem groups in haemoglobin combine with oxygen in such a way that each haem group combine with one molecule of oxygen.

## Combination with Carbon monoxide:

Haemoglobin combines with carbon monoxide to form carboxy haemoglobin with an affinity, two hundred times more than with oxygen.

**Formation of carbamino compound:**

A small amount of CO<sub>2</sub> carried in the blood is in combination with the free amino acids of the proteins of haemoglobin to form carbamino compounds.

**Oxidation- Reduction properties of haemoglobin:**

Under normal conditions, iron exists in ferrous form in the haemoglobin. It can be converted to ferric form by oxidation with ferricyanide and this result in the formation of Methemoglobin.

**Action of weak acids and alkalies:**

Weak acids and alkalies act on haemoglobin by separating the haem from globin. In the presence of oxygen, haem gets oxidized to haematin in which iron is in the ferric form. Haematin can combine with the chloride ion to form haematin chloride, which is also known as haemin.

**With strong acids:**

A more vigorous change takes place with strong acids. In addition to the separation of globin from haemoglobin, the iron from the haem is removed, resulting in the formation of an iron free derivative.

**METABOLISM OF HAEMOGLOBIN:****I. SYNTHESIS OF HAEMOGLOBIN:**

In adult's synthesis of haemoglobin takes place in the red bone marrow from 3 sources namely, protoporphyrin, Iron and globin. Certain co-factors are required to facilitate the synthesis.

1. Vitamin B<sub>12</sub> (extrinsic factor)
2. Intrinsic factor
3. Folic acid group of vitamins
4. Copper

Synthesis of haemoglobin and maturation of the erythrocytes proceeds simultaneously. The immature erythrocyte contains free porphyrin. As the cells mature the porphyrin content decrease and is replaced by haemoglobin. Thus the circulating red blood cells, which are rich in haemoglobin contain only traces of porphyrin.

## **II. CATABOLISM OF HAEMOGLOBIN:**

Erythrocytes at the end of their life span of 120 days are broken down. Simultaneously the haemoglobin is degraded. Daily about 8gms of haemoglobin are broken down in the body and this corresponds to the formation of about 300 mg of bile pigments per day. The normal sites of haemoglobin degradation are mainly the reticuloendothelial cells of the spleen, bone marrow and liver. The globin which is the protein portion may be reutilized as such or may break down further into its constituent amino acids and enter to be amino acid “pool” for reutilization. The haem portion breaks down resulting in the formation of bile pigments.

### **Packed cell volume:**

Packed cell volume (PCV) is the haematocrit value expressed as the percentage of cellular elements with that of whole blood.

## **BLOOD INDICES:**

Blood indices are specifically meant for erythrocytes. The number, shape, volume and colour of the red blood cells indicate the quality of blood. So these features are named as blood indices.

### **IMPORTANCE OF BLOOD INDICES:**

Blood indices have got diagnostic value in determining the type of anaemia.

### **DIFFERENT BLOOD INDICES:**

1. Mean corpuscular Volume (MCV)
2. Mean corpuscular haemoglobin (MCH)
3. Mean corpuscular haemoglobin concentration (MCHC)
4. Colour Index (CI)

**Mean corpuscular Volume (MCV):**

Mean corpuscular Volume is the average volume of single red blood cells and it is expressed in cubic microns (cu.μ).

$$\text{MCV} = \frac{\text{PCV in 1000 ml or 100 ml} \times 10}{\text{RBC count in millions / cu.mm}}$$

**Mean corpuscular haemoglobin (MCH):**

Mean corpuscular haemoglobin is the quantity or amount of haemoglobin present in one red blood cell. It is expressed in micro gram or pico gram (pg).

$$\text{MCH} = \frac{\text{Haemoglobin in grams per 1000 ml of blood or 100 ml} \times 10}{\text{RBC count in millions / cu.mm}}$$

**Mean corpuscular haemoglobin concentration (MCHC):**

This is the concentration of haemoglobin in one red blood cell. It is the amount of haemoglobin expressed in relation to volume of one red blood cell. So the unit of expression is percentage.

$$\text{MCHC} = \frac{\text{Haemoglobin in grams per 1000 ml of blood} \times 10}{\text{PCV in 100 ml of blood}}$$

**Colour Index (CI):**

This is the ratio between the percentage of the haemoglobin and the percentage of red blood cells in the blood.

$$\text{CI} = \frac{\text{Haemoglobin \%}}{\text{RBC \%}}$$

All the above mentioned blood indices are reduced in iron deficiency anaemia.

**NORMAL VALUES:**

- ❖ PCV: Women 35 - 45%; Men 40 - 45%
- ❖ MCV: 76-96 fl
- ❖ MCH: 27-33 picograms
- ❖ MCHC: 31-35 g/dl
- ❖ RETICULOCYTES: 1.6%

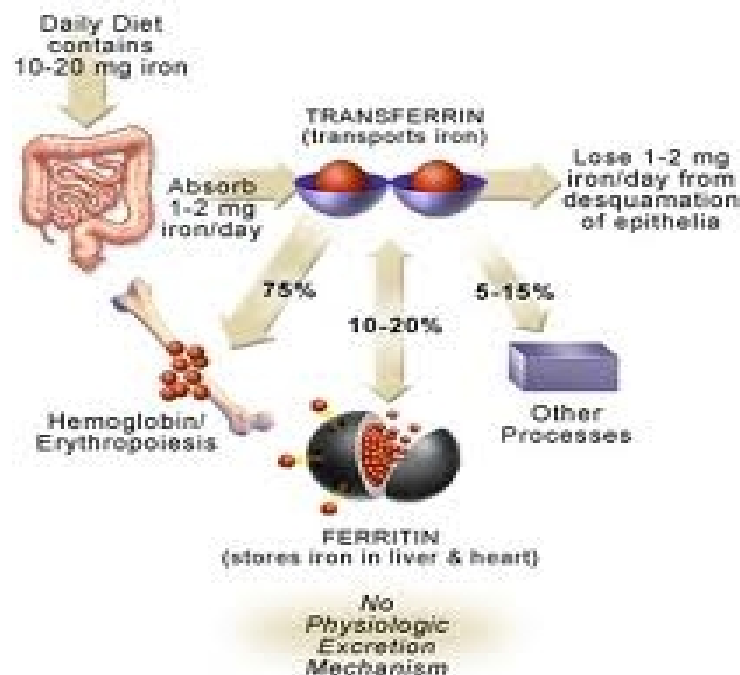
## IRON:

Iron is an essential constituent of haemoglobin, myoglobin, cytochromes and other components of respiratory enzymes like cytochrome oxidase, catalase and peroxidase. The main functions of iron are,

- Transport of oxygen to the tissues.
- Iron is necessary for electron transport chain, oxidative phosphorylation.
- Peroxidase, lysosomal enzyme is required for phagocytosis and killing of bacteria by neutrophils.
- Iron is associated with effective immune competence of the body.

## DAILY IRON REQUIREMENTS IN DIFFERENT AGE GROUPS:

Pregnant and lactating female	-	40 mg/day
Females 11 years to 30 years	-	18 mg/day
Adult's male	-	10 mg/day
Males 11 years to 17 years	-	12 mg/day
Upto 10 years (M/F)	-	10 mg/day
Infant	-	1 mg/kg/day from 4 months





## **IRON SOURCES:**

### **RICH SOURCES:**

Muscle meat (Red more than white), Organ meat (Liver, heart, kidney), Beef liver, Red meat not only supplies a good amount of iron it also increases absorption of iron from other food sources

### **GOOD SOURCE:**

Greens, Leafy vegetables, Nuts, Cereals, Wheatgerms, Fish, Shellfish, Poultry, Egg, Apples and dry fruits, Jaggery, Yeast, Molasses, Oysters, Spinach, Banana, Pomegranate

### **POOR SOURCES:**

Wheat and Polished rice

## **DISTRIBUTION OF IRON IN THE BODY:**

Total quantity of iron in the body averages 4 - 5 gm of total body weight.

Iron is distributed in the body as follows;

- Haemoglobin – present in red cells contain most of the body iron (65%)
- Myoglobin – comprises a small amount of iron in the muscles (4%)
- Haem and non-haem enzymes – eg cytochrome catalase, peroxidase, succinic dehydrogenase and flavoproteins constitute a fraction of total body iron (0.5%)
- Transferrin bound iron – circulates in the plasma and constitutes another fraction of total body iron (0.5%). (All these forms of iron are in functional form)
- Ferritin and haemosiderin – are the storage form of excess iron (30%). They are stored in the mononuclear phagocytic cells of the spleen, liver, bone marrow and in parenchymal cells of the liver

## **IRON METABOLISM:**

The iron required for haemoglobin synthesis is derived from two primary sources ingestion of food containing iron and recycling of iron from senescent red cells.

**ABSORPTION:**

Iron is mostly found in food in ferric form. In the acidic medium provided by gastric HCl, the  $\text{Fe}^{3+}$  is released from food. Ascorbic acid (Vitamin C) and cysteine convert ferric form to ferrous form. This ferrous form is soluble and readily absorbable. Absorption of iron takes place from almost all part of the small intestine mainly from duodenum and proximal jejunum. Iron from diet containing haem is better absorbed than non haem iron.

**FACTORS AFFECTING IRON ABSORPTION:**

- Acidity, ascorbic acid and cysteine enhance iron absorption.
- In Iron deficiency anaemia iron absorption is increased to 2 to 10 times that of normal.
- Small peptides and amino acids favour iron absorption.
- Phytate and oxalate (found in leafy vegetables) interfere with iron absorption.
- Food additives (EDTA) and antacids reduce iron absorption.
- A diet with high phosphate which are found in soft drinks, beer, ice cream, candy bar decreases iron absorption
- Smoking and alcohol interferes with iron absorption.
- Impaired absorption of iron is observed in malabsorption syndrome such as steatorrhoea
- In patients with partial or total surgical removal of stomach, iron absorption is severely impaired

**IRON IN THE MUCOSAL CELLS:**

The iron ( $\text{Fe}^{2+}$ ) entering the mucosal cell by absorption is oxidized to ferric form ( $\text{Fe}^{3+}$ ) by the enzyme ferroxidase.  $\text{Fe}^{3+}$  then combines with apoferritin to form ferritin which is the temporary storage form of iron. From the mucosal cells, iron may enter the blood stream (which mainly depends on the body needs) or lost when the cells are desquamated.

### **TRANSPORT OF IRON IN THE PLASMA:**

The iron liberated from the ferritin of mucosal cells enters the plasma in ferrous state. Here, it is oxidized to ferric form by a copper containing protein, ceruloplasmin which possesses ferroxidase activity. Another cuproprotein ferroxidase- II also helps for the conversion of  $\text{Fe}^{2+}$  to  $\text{Fe}^{3+}$ .

Ferric iron then binds with a specific iron binding protein, namely **transferrin** or siderophilin. The plasma transferrin can bind with 400 mg of iron/dl plasma. This is known as **total iron binding capacity (TIBC)** of plasma.

### **STORAGE OF IRON:**

Storage of excessive iron in the blood is deposited in all cells especially in the liver hepatocytes. The hepatic cells contain large amounts of a protein called apoferritin, which is capable of combining reversibly with iron. Therefore when iron is available in the body fluids in extra quantities, it combines with apoferritin to form ferritin and stored. When iron is in the low level, the ferritin releases the iron. Thus, apoferritin – ferritin system of liver acts as **blood iron buffer** as well as iron storage medium. **Hemosiderin** is another iron storage protein and this is insoluble form.

### **EXCRETION:**

The body is unable to regulate its iron content by excretion alone. The amount of iron lost per day is 0.5 – 1.0 mg which is independent of iron intake. This loss is nearly twice more (i.e. 1 – 2 mg per day) in menstruating women. Iron is lost from the body as a result of desquamation of epithelial cells from the gastro intestinal tract, sweat, and loss via hair and nail. Iron excreted in the faeces mainly consists of unabsorbed iron and desquamated mucosal cells.

### **REGULATION OF TOTAL BODY IRON:**

Absorption and excretion of iron are maintained almost equally under normal physiological conditions. When the iron storage is saturated in the body, it automatically reduces the further absorption of iron from the gastrointestinal tract by feedback mechanism. The factors which reduce absorption of iron are,

- Stoppage of apotransferrin formation in the liver, so that the iron could not be absorbed from the intestine
- Reduction in the release of iron from the transferrin so that transferrin is completely saturated with iron and further absorption is prevented. This type of regulation is known as feedback mechanism

## **ANAEMIA**

### **DEFINITION:**

Anaemia is defined as a reduction of the red blood cell volume or haemoglobin concentration below the range of values occurring in healthy persons.

### **WHO criteria for diagnosis of Anaemia**

Adult women	11-15gms%
Adult men	14-18gms%
Children 6 years-14 years	Less than 12gms%
Children 6 months -6 years	Less than 11gms%

### **GRADING OF ANAEMIA:**

WHO grades anaemia according to haemoglobin level as follows;

Hb between 10 gm and cut off point for age -	Mild
Hb between 7 to 10 gm -	Moderate
Hb under 7 gm -	Severe
Hb under 5 gm -	Very Severe

### **CLASSIFICATION:**

#### **A. BASED ON PRODUCTION/DESTRUCTION OF RBC**

- Decreased or ineffective production of red blood cells or haemoglobin.
- Increased destruction or loss of red blood cells.

## **1) ANAEMIA RESULTING PRIMARILY FROM INADEQUATE PRODUCTION:**

### **i. Marrow failure**

- ❖ Aplastic anaemia: Congenital, Acquired.
- ❖ Decreased number of red blood cell precursor: Congenital, Acquired.
- ❖ Marrow replacement: Malignancies, Osteopetrosis, Storage disorders.

### **ii. Deficiency of Specific Factors**

#### **a. Megaloblastic anaemia:**

- ❖ Folic acid deficiency or malabsorption.
- ❖ B<sub>12</sub> deficiency or malabsorption.

#### **b. Microcytic anaemia:**

- ❖ Iron deficiency
- ❖ Copper deficiency
- ❖ Lead poisoning

### **iii. Impaired Erythropoietin Production**

- ❖ Chronic renal disease.
- ❖ Hypothyroidism, Hypopituitarism.
- ❖ Chronic inflammation, infection.
- ❖ Malignancy.
- ❖ Protein malnutrition

## **2) ANAEMIA RESULTING PRIMARILY FROM RAPID DESTRUCTION:**

**I. Blood Loss:** Acute haemorrhage, chronic haemorrhage.

### **II. Haemolytic Anaemia**

#### **a. Intrinsic Defects [Intrinsic abnormalities]**

- ❖ Membrane Defects: Hereditary spherocytosis, Elliptocytosis.
- ❖ Enzyme Defects:
  1. Enzyme of glycolytic pathway
  2. Enzyme of the pentose phosphate pathway
- ❖ Defects in synthesis of haemoglobin: Hb S, C, D, E

#### **b. Extrinsic abnormalities**

- ❖ Immunologic disorders
  1. Rh iso immunization
  2. A (or) B iso immunization
  3. Other minor Blood group incompatibilities
- ❖ Active antibody formation

### **A. Morphological classification:**

**B. Based on the red cell size, haemoglobin content and red cell indices anaemia are classified as follows**

#### **Microcytic Hypochromic anaemia**

- *Iron deficiency*
- Thalassemia
- Haemoglobinopathies
- Haemolytic anaemia.

#### **Normocytic normochromic anaemia**

- Aplastic anaemia

**Macrocytic normochromic anaemia**

- Folate and vitamin B<sub>12</sub> deficiency
- Hypothyroidism

**Macrocytic hypochromic anaemia**

- Combined deficiency of iron and folate or Vitamin B<sub>12</sub>

**Microcytic anaemia:**

The size of red cells is smaller than normal and colour index less than one. The mean corpuscular volume is less than its normal range (76-96 cubic microns).

**Causes of Microcytic anaemia:**

- Inadequate intake of iron, defective absorption of iron, idiopathic hypochromic anaemia, starvation, dietary deficiency, anaemia of milk fed children.
- Excessive need of iron during growth, pregnancy
- Chronic haemorrhages
- Inadequate utilization of haematinics – myxoedema, chronic sepsis, chronic renal diseases.

**Macrocytic anaemia:**

The red cells are bigger than normal and the colour index is above one. The mean corpuscular volume is more than its normal range (76-96 cubic microns)..

**Causes of Macrocytic anaemia:**

- Deficiency of the Extrinsic factors, Nutritional anaemias, Pellagra.
- Absence of Intrinsic factor, Total gastrectomy
- Cirrhosis of liver
- Megaloblastic anaemia, Hypoblastic anaemia.

**Normocytic Anaemia:**

The size of the red cells is more or less than the normal size. The colour index is less than the normal range and the mean corpuscular volume is 76 to 96 cubic microns.

### **Causes of Normocytic anaemia:**

- Acute hemorrhage
- Haemolytic anaemias
- Blood destruction by metals, Protozoa, Haemolysis
- Leukemia, Hodgkin's disease, Drug poisoning

### **B. Based on Etiopathogenesis:**

#### **1. Nutritional Anaemias:**

*Iron deficiency anaemia*, Folic acid, VitaminB12, VitaminC, Pyridoxine, Thyroxine deficiency anaemias.

#### **2. Haemolytic Anaemias:**

**Congenital** - Thalassemia, Sickle cell anaemia, Hereditary spherocytosis, G-6-PD deficiency

**Acquired** - Malaria, Kala azar, Rh or ABO incompatibility

#### **3. Haemorrhagic Anaemias:**

**Acute** - Trauma, Epistaxis

**Chronic**- Hookworm, Scurvy, Chronic dysentery, Oesophageal varices

#### **4. Anaemia due to Bone marrow depression:**

**Primary** - Hypoplasia or Aplasia, Fanconi's Anaemia

**Secondary** - Infections, Irradiation

#### **5. Anaemia due to Infections:**

**Acute** - Fulminating osteomyelitis, Septicaemia

**Chronic**- Tuberculosis, Rheumatic fever, Sub acute bacterial Endocarditis Wound infections, Congenital syphilis



## **6. Other Miscellaneous Conditions:**

Chronic amoebic dysentery repeated bouts of diarrhoea

## **CLINICAL FEATURES OF ANAEMIA:**

The haemoglobin level at which symptoms and signs of anaemia develops depends upon 4 main factors.

### **1. The Speed of onset of anaemia:**

Rapidly progressive anaemia causes more symptoms than anaemia of slow onset, as there is less time for physiological adaptation.

### **2. The Severity of Anaemia:**

Mild anaemia produces no symptoms or sign, but a rapidly developing severe anaemia (haemoglobin below 6 gm) may produce significant clinical features.

### **3. The age of the patient:**

The young patient due to good cardiovascular compensation tolerate anaemia quite well as compared to the elderly

### **4. The haemoglobin dissociation:**

In anaemia, the affinity of haemoglobin for oxygen is depressed. As a result oxy haemoglobin is dissociated more readily to release free oxygen for cellular use.

## **PATHOLOGICAL RED BLOOD CELLS IN ANAEMIA:**

In anaemia, many kinds of abnormal red cells including nucleated forms are seen in the circulation. These abnormal cells are,

## **I. Anisocytosis (Variation in size of RBC)**

### **a. Macrocytosis:**

The size of the cell is 9 to 12 microns. This occurs in pernicious anaemia, plumbism, acute anaemia due to severe haemorrhage and erythroblastosis foetalis.

### **b. Microcytosis:**

The size is less than 6 microns. This occurs in Iron deficiency anaemia chlorosis, chronic bleeding, polycythaemia and anaemias secondary to infections.

### **c. Normocytosis:**

The red cells are in normal size, found mainly in post haemorrhagic anaemias.

## **II. Poikilocytosis (Variation in shape of RBC)**

### **a. Ovalocytosis:**

The oval shaped red cells occur in some human families. Such a condition does not cause ill-health, but a minority may manifest haemolytic phenomena.

### **b. Spherocytosis:**

Spherocytosis may be seen in congenital haemolytic anaemia and in certain other acute haemolytic anaemias. The red cells are very fragile.

### **c. Sickle cells:**

In arterial blood, the red blood cells are normal in shape, but in venous blood some cells assume the shape of sickle.

## **III. Polychromatophilia (Irregularity in staining)**

This indicates an increase in immature red cells in circulation and occurs in the following forms

### **a. Normoblasts:**

Nucleated red cell indicates over activity of bone marrow, commonly seen in severe anaemia.

### **b. Punctate Basophilia (Basophilic stippling):**

It occurs in lead poisoning and severe anaemia and chronic malaria.

### **c. Reticulocytes:**

Occurs in acute bleeding and in pernicious anaemia.

## **IRON DEFICIENCY ANAEMIA (IDA)**

Iron deficiency is the most common and widespread nutritional disorder in the world. Iron deficiency is the most common single cause of anemia worldwide, accounting for about half of all anemia cases. The numbers are staggering 2 billion people, over 30% of the world's population are anaemic.

Its prevalence is higher in the developing countries i.e, 27% in developing countries compared to 6% in developed countries. India is having high prevalence of iron deficiency anaemia of 1 in 77 people.

It is more common in women than men. About 20% of all women of child bearing age have iron-deficiency anemia, compared with only 3% of adult men. The principal cause of iron-deficiency anemia in these countries is blood lost during menses in premenopausal women and not compensated by intake from food and supplements.

The cause of IDA in India is due to poverty, malnutrition, untreated illness, hook worm infestation, socio-economic problems. Various programmes are launched by Indian government to eradicate iron deficiency anaemia.

National family health survey -3 [NFHS-3] reveals the anaemic percentage in Children 70-80%, Adolescent girls-15.5%, Adolescent boys-14.3%, Adults-24% Women of reproductive age- 47%, Pregnant women-70%.

Under AP&CP [Anemia Prevention & Control Programme] pregnant women are provided with iron & folic acid tablets. CSSM [Child Survival & Safe Motherhood Programme] implemented to eradicate anemia of children. Under NNACP [National Nutritional Anemia Control Program] Children [1-5yr] are provided with 20 mg iron tablet/100mg folic acid tablet and adults are provided with 100mg iron tablet/500mg folic acid tablet, per week. All these programs aimed at achieving HB level to 12gm% by the age of 12yrs by 2012 in India.

Iron deficiency and anaemia reduce the work capacity of individuals and entire populations, bringing serious economic consequences and obstacles to national development.

### **Iron Requirements:**

Understanding of iron requirements, intakes and bioavailability is essential to explain the vulnerability of some individuals to develop iron deficiency anaemia. Infant and children should continue to absorb 0.8 to 1.0 mg of iron daily to reach the adult body stores of 4-5 grams.

### **Daily requirements:**

Adult male 0.5-1mg

Adult female 1-2mg

Pregnancy of 2<sup>nd</sup> and 3<sup>rd</sup> trimester 3-5mg

Infants 60micron/kg

Children 25micron/kg

Normal body losses of iron are about 20µg/kg/day and most of these losses occur by the shedding of cells from intestinal mucosa. Daily loss in faeces is 0.6mg and in menstruation is 1.3mg. These losses are small and are relatively constant but may increase many folds in the presence of diarrhoea, dysentery, and parasitic infections.

The store of iron present in all animal cells is deposited mostly in ferritin complexes. In humans each of these are made up of 24 subunit protein molecules of two different types, with each ferritin complex carrying about 4500 iron atoms, as ferrous ions.

Iron deficiency ranges from iron depletion, which produces little physiological damage, to iron-deficiency anemia, which can affect the function of numerous organ systems. Iron depletion causes the amount of stored iron to be reduced, but has no effect on the functional iron. However, a person with no stored iron has no reserves to use if the body enters a state in which it requires more iron than is being absorbed from the diet.

## **STRUCTURES OF THE RED CORPUSCLES IN IDA:**

In iron deficiency anaemia, the red blood corpuscles are decreased or normal in the number and haemoglobin content of the red blood corpuscles is reduced. In the blood smear, the red cells appear pale with a large central pale area and many of the red blood cells appear to be smaller than the normal. This type of anemia is called “*Hypochromic and Microcytic anemia*”.

## **ETIOLOGY:**

The etiology varies with the age, sex, and country of residence of the patient.

### **Etiological factors in iron deficiency Anaemia:**

#### ➤ **Increased physiological requirements:**

Rapid growth in Infant and preadolescence, Menstruation, Pregnancy.

#### ➤ **Decreased iron assimilation:**

Iron poor diet, Iron malabsorption Sprue, non tropical sprue, Pica , GI surgery, Chronic diarrhoea ,Malnutrition.

#### ➤ **Blood Loss :**

Gastro intestinal bleeding, Peptic ulcer disease, Inflammatory Bowel disease, Meckel's diverticulum, Drugs-Salicylates, antibiotics etc., Hook worm infestation, Haemoglobinuria, prosthetic heartvalve, Intense exercise, Bleeding diathesis, Repeated venous sampling.

#### ➤ **Increased demands:**

Prematurity, Adolescence, Pregnancy

#### ➤ **Iron Poor Diet:**

Dietary inadequacy is present in more than 80 percent of cases especially in the poorer groups.

### **IRON MALABSORPTION:**

- Iron malabsorption is an unusual cause of iron deficiency where malnutrition is rampant however both histologic and functional abnormalities of the intestine are common. Defective iron absorption is caused by non-tropical sprue.
- Partial or total gastrectomy impairs iron absorption caused by reduction in gastric acidity and acceleration of the food through the upper portion of the small bowel. The absorption of both haem iron and non-haem is defective.
- Pica or the habitual ingestion of non-food substances is common in children, and pregnant women. It markedly inhibits iron absorption.
- Pancreatic enzymes may contribute to the high incidence of iron deficiency in patients with cystic fibrosis.

### **GASTRO INTESTINAL BLEEDING:**

- In adult men and postmenopausal women and children, occult bleeding from the gastrointestinal tract is the most common cause of iron deficiency.
- Peptic ulcer disease is a well-documented cause of occult blood loss.
- Crohn's disease and ulcerative colitis also are commonly associated with iron deficiency.
- Corticosteroids, Indomethacin and other non-steroidal anti-inflammatory agents may also induce gastrointestinal tract bleeding
- Hookworm infestation (Ankylostomiasis) is the most important cause of intestinal blood loss worldwide. The parasites *Ankylostoma duodenale* and *Nectar americanus* attach to the proximal portion of the small intestine and suck blood from submucosal vessels.

## **PATHOGENESIS:**

Iron deficiency anaemia develops when the supply of iron to the bone marrow is insufficient for the requirements of haemoglobin synthesis.

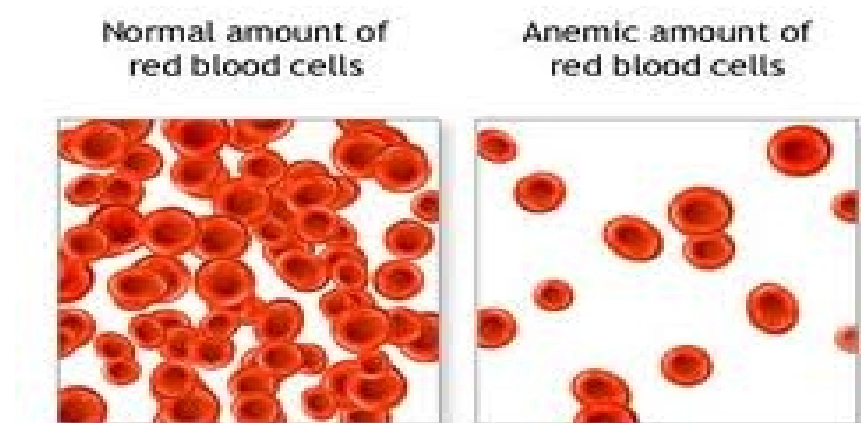
It has been pointed out that the body is normally in a state of positive iron balance. When a negative iron balance occurs either due to blood loss, increased requirements or impaired absorption, the deficit is made good by iron mobilized from the tissue stores and an adequate supply of iron for haemoglobin formation is maintained. It is only when the tissue stores are exhausted and the supply of iron to the marrow for haemoglobin synthesis becomes inadequate, hypochromic anaemia develops.

Thus iron deficiency may be regarded as developing in two stages.

- The progressive depletion and cultivate exhaustion of the available tissue iron stores.

## **THE DEVELOPMENT OF ANAEMIA.**

Iron deficiency state, which may be divided into three functionally distinct stage of severity



## STAGE OF IRON DEFICIENCY ANAEMIA:

### STORAGE IRON DEPLETION:

Iron reserve is small or absent and is characterized by reduced serum ferritin or reduced iron concentration in marrow and liver tissue. Haemoglobin serum iron, Transferritin concentration and saturation are within normal limits.

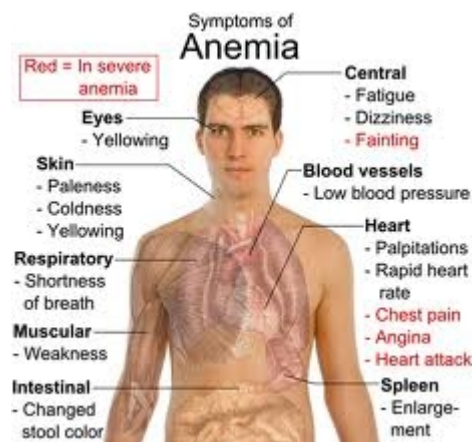
### IRON LIMITED ERYTHROPOIESIS:

Haemoglobin (Hb) may still be normal but serum iron is low and TIBC increased with a low serum ferritin and raised free erythrocyte protoporphyrin (FEP).

## IRON DEFICIENCY ANAEMIA:

The flow of iron to erythroid marrow is impaired to cause reduction in haemoglobin concentration with a progressive microcytic hypochromic anaemia associated with the reduced serum iron, transferrin saturation and serum ferritin level.

### CLINICAL FEATURES:



### SYMPTOMS:

Anorexia, Headache, Bodyache, Giddiness, Fatigue, Lassitude, Breathlessness on exertion, Dimness of Vision, Dizziness, Insomnia, Inability to concentrate, Tinnitus, Anginal pain, Paraesthesia in fingers and toes, Palpitation, Insomnia, Anxiety, Constipation, Abdominal distension, Hair loss, Exercise intolerance, Restless leg syndrome, Missed menstrual cycle or oligomenorrhoea and Pica.



**SIGNS:**

Pallor of the skin, mucous membrane, palms, nails and conjunctiva Smooth, pale, glossy tongue, Angular stomatitis, Glossitis and Koilonychia.

**EPITHELIAL TISSUE CHANGES**

Long standing IDA causes epithelial tissue changes in some patients. The changes occur in the nails (koilonychia or spoon shaped nails), tongue (atrophic glossitis), mouth (angular stomatitis) and oesophagus causing dysphagia from development of thin membranous webs at the post cricoid area (Plummer Vinson syndrome).

**ROLE OF IRON DEFICIENCY ANAEMIA IN VARIOUS SYSTEMS:****CARDIOVASCULAR SYSTEM:**

Dyspnoea and palpitation are common symptoms while on exertion but in very severe anaemia the patient may get cardiac failure and there may be dyspnoea at rest. Haemic murmurs are commonly heard in anaemic patients. The murmurs are most often mild systolic murmurs heard at the mitral area.

Systolic bruits over the carotid arteries in the neck are sometimes present in anaemia usually they are bilateral and occur in the absence of an aortic systolic bruit and disappear following correction of the anaemia. Jugular venous pressure increases in severe anaemia due to the high pulse pressure, with a capillary pulsation. Oedema of the legs occasionally occurs in ambulant patient with severe anaemia as the result of venous and capillary pressure on exertion and increased capillary permeability.

**CENTRAL NERVOUS SYSTEM:**

Symptoms include faintness, giddiness and headache, roaring and banging in the ears, tinnitus, spots before the eyes, lack of concentration and drowsiness and with severe anaemia clouding of consciousness, numbness, coldness and sometime tingling of the hands and feet.

**REPRODUCTIVE SYSTEM:**

Menstrual disturbances are commonly found.

**RENAL SYSTEM:**

Slight proteinuria may be present with severe anaemia. Anaemia may further reduce renal function to the point at which nitrogen retention develops. Correction of anaemia in such patient is usually followed by a fall in blood urea.

**GASTRO INTESTINAL SYSTEM:**

Anorexia is the commonest symptom, nausea, flatulence and constipation may also occur. Slight to moderate smooth hepatomegaly is common in severe anaemia and when congestive heart failure develops the liver may become tender. In certain cases of iron deficiency anaemia, spleen may be enlarged.

**PYREXIA:**

Mild pyrexia may occur with severe anaemia but marked fever is due to either the causative disorder or to some complicating factor.

**DIETARY IRON:**

The dietary iron comes from two sources, Heme and non-heme, the latter being the major source of iron in diet and is found in varying degrees in all foods of plant origin. Heme iron is present in meat, fish, and poultry, but the intake of these products is generally low. Heme iron is better absorbed than non-heme iron and is not influenced by dietary factors.

Good sources of iron in the diet include, pulses, dhals, green leafy vegetables, dates, nuts, jaggery, meat and fish. Administration of 50 mg of vitamin C increases iron absorption by two folds.

## **COMPLICATIONS IN IRON DEFICIENCY ANAEMIA:**

- Iron deficiency anaemia may be the present finding in gastro intestinal cancer.
- In patients with heart disease severe anaemia may precipitate angina pectoris or congestive heart failure
- Infections are more common in Iron deficiency anaemia, especially those of the respiratory, gastrointestinal and urinary tracts.
- Chronic iron deficiency anaemia reduces the efficiency in work and study

## **INVESTIGATIONS REQUIRED FOR IRON DEFICIENCY ANAEMIA:**

### **1. BLOOD INVESTIGATIONS :**

Haemoglobin, Total Red Blood cell count, Peripheral blood smear, Packed cell volume, Mean corpuscular volume, Mean corpuscular haemoglobin, Mean corpuscular haemoglobin concentration, Total iron binding capacity, Serum iron, Serum Ferritin, Differential count, Erythrocyte sedimentation rate, Serum protein, Serum creatinine.

### **2. URINE INVESTIGATIONS:**

Sugar, albumin, Deposits, Red blood cells, Pus cells.

### **3. STOOL INVESTIGATIONS:**

Ova, Cyst, Occult blood, Red blood cells, Pus cells.

## **SPECIAL INVESTIGATIONS OCCASIONALLY REQUIRED:**

- X-ray barium meal, X-ray Barium enema, X-ray chest
- Endoscopy, colonoscopy, sigmoidoscopy, gastro duodenoscopy
- Isotope studies
  - i. Determination of life span of red cells using  $^{51}\text{Cr}$  labeled erythrocytes
  - ii. Determination of absorption, utilization, and disposal of iron using  $^{58}\text{Fe}$
- Skeletal survey for multiple myeloma and secondary deposits
- Bone marrow examination
- Liver Function Test (LFT)
- Jejunal biopsy, urography, selective angiography
- Ultrasonography

## **LABORATORY DIAGNOSIS:**

In Iron deficiency anaemia the haemoglobin is less than 11 gm in women and less than 14 gm in men. The red cell count is rarely below 2.5 million/cubic millimeter and the red cells are usually microcytic and hypochromic reticulocytes and platelets are normal or increased. The white cell count is normal. Serum ferritin is below 30µg/L in women and below 100µg/L in men. Serum iron is usually below normal range (Normal is 50 - 150µg/dl). Bone marrow haemosiderin is absent. The PCV, MCV, MCH, MCHC are all reduced.

## **DIFFERENTIAL DIAGNOSIS:**

Iron deficiency anaemia must be differentiated from other hypochromic anaemia.

### **I. Anaemia of infection:**

Chronic infections such as rheumatic fever, rheumatoid arthritis, tuberculosis and malaria may have associated mild to moderate anaemia, which is normochromic or slightly hypochromic. Serum iron is low, total iron binding capacity is also decreased. Bone marrow haemosiderin is present

### **II. Pyridoxine (Vit B6) Deficiency anaemia:**

It is characterized by severe hypochromic microcytic anaemia, and progressive hepatosplenomegaly. There is elevation of serum iron. Marrow shows erythroid hyperplasia with nucleated normoblasts containing iron inclusions, the so-called “sideroblasts” in abundance. There are abnormalities of tryptophan metabolism.

### **III. Some Haemoglobinopathies:**

In haemoglobin abnormalities like thalassemia, the red cells are microcytic and hypochromic. Thalassemia minor is distinguished by normal serum iron, normal total iron binding capacity, decreased mean corpuscular volume, normal serum ferritin and transferrin iron saturation.

#### **IV. Sideroblastic anaemia:**

Most of the red cells are hypochromic and microcytic, serum iron is high and iron deposit in the marrow, liver and spleen are excessive. Many erythrocytes and erythroblasts contain non haemoglobin iron (ringed sideroblasts) in their mitochondria. The spleen is usually enlarged.

#### **V. Anaemia of lead poisoning:**

Anaemia of lead poisoning is hypochromic and microcytic and may be moderate to severe. Basophilic stippling of red cells, which helps to differentiate it from iron-deficiency anaemia, pronounced increase of aminolevulinic acid and coproporphyrin in the urine is characteristic of lead poisoning. Increased levels of lead in blood are required for definite diagnosis.

#### **DIAGNOSIS:**

Following criteria are essential to diagnose iron deficiency anaemia.

- History of inadequate intake of dietary iron and blood loss if any
- Typical symptoms and signs like easy fatigability, pallor, pica, koilonychia, smooth tongue, cheilosis, numbness, palpitation, dyspnoea and dysphagia associated with general considerations
- Haemoglobin estimation variably reduced
- Hypochromic and microcytic structure of red blood cells
- Low serum ferritin, low serum iron, increased total iron binding capacity
- Reduced mean corpuscular volume
- Platelet count is either normal or raised
- Blood loss usually occult
- Erythrocyte count may be normal or reduced less than haemoglobin level would suggest

## **MANAGEMENT:**

This can be considered under three headings;

1. Correction of anaemic state: Over all correction of nutrition with articles rich in iron is important. Iron deficiency is corrected by intake of rich iron content diet and administration of medical iron.
2. Replenishment of iron stores.
3. Elimination of the cause.

## **RESPONSE TO TREATMENT:**

1. A positive response to therapy can be defined as a daily increase in haemoglobin concentration of 0.1 gm/dl (0.3 or 1 % increase in haemocrit) from the 4th day onwards, or 0.5 gm/dl for a week.
2. Reticulocytes increase within 3 to 5 days and reach a maximum at 5 to 10 days.
3. Haemoglobin concentration is virtually normal after 2 months of therapy. However food containing iron should be continued for 3 to 6 months to build up iron stores. RBC counts may temporarily rise above normal before haemoglobin response. The red cell indices may remain abnormal for sometime after the normal haemoglobin level has been restored. The microcytic population is gradually replaced by a normocytic population.
4. Pica pagophagia and other nonspecific symptoms disappear within one week of therapy. With the onset of treatment the patients shows rapid subjective improvement with disappearance of fatiguability, numbness, palpitation, lassitude, and impaired cognitive functions. Of the epithelial lesions those affecting tongue and nails are most responsive to treatment. After 1-2 weeks of therapy, small filiform papillae are seen on the tongue. By 3 months the tongue is usually normal and koilonychia usually disappears within 3 -6 months.

## **PREVENTION OF IRON DEFICIENCY ANAEMIA:**

Appropriate nutritional strategies are an important factor in prevention of IDA. The basic approaches to the prevention of IDA include

1. Dietary modification and consumption of larger amounts of habitual foods increases total iron consumption by 25 – 30 %. Processes like germination (Sprouting of green gram) consumption of green leafy vegetables would be additional long-term methods for prevention of IDA.
2. Periodic de-worming with anti-helminthic drugs for hookworm infestation and schistosoma should be considered in endemic areas.
3. Supplementation with medicinal iron is considered necessary to reduce the extent of anaemia in developing countries.
4. Food and salt fortification with iron are evolving rapidly and would be one of the most effective ways to control IDA. Salt fortification with iron content of 1 mg per gram of salt is the most effective preparation.

## **SELF CARE PROCEDURES FOR IRON DEFICIENCY ANAEMIA:**

- Eat more foods that are good source of iron
- Concentrate on green leafy vegetable, red meat, beef liver, poultry, fish, wheat germs, oysters, dried fruit and fortified cereals.
- Boost iron absorption. Foods high in vitamin C like citrus fruits, tomatoes and strawberries help the body absorbing iron from food.
- Red meat not only supplies a good amount of iron, it also increases absorption of iron from other food sources.
- Take an iron supplement, Consult your physician for proper dosage.
- While iron is best absorbed when taken on an empty stomach, it can upset your stomach. Taking iron with meals is less upsetting to the stomach.

- Avoid antacids, phosphates (which are found in soft drinks, beer, ice cream, candy bars, etc) and the food additive EDTA. These block iron absorption.
- Increase dietary fibre to prevent constipation
- Avoid aspirin and products with aspirin
- Eat good sources of folic acid daily. These include vegetables like asparagus, sprouts, spinach and lettuce.
- Black-eyed peas, cantaloupe orange juice, oatmeal, whole grain cereals, wheat germ, liver and other organ meats are excellent sources of folic acid.
- Eat fresh uncooked fruits and vegetables often. Don't parboil vegetables. Heat destroys folic acid.



## **9. MATERIALS AND METHODS**

### **9.1 STUDY TYPE**

Observational study

### **9.2. STUDY DESIGN**

An analytical open label, single centric study.

### **9.3. STUDY PLACE**

Department of Noi naadal,  
Ayothidoss Pandithar Hospital,  
National Institute of Siddha,  
Tambaram Sanatorium, Chennai-47.

### **9.4 STUDY PERIOD**

- Total period - 1yr
- Recruitment for the study - upto 10 months
- Data entry analysis - 1 month
- Report preparation and submission - 1 month

**GANTT CHART: (Study Period - 1 year)**

<b>ACTIVITIES (Scaled in Months)</b>	<b>1-10 th</b>	<b>11 th</b>	<b>12th</b>
<b>Recruitment for the study</b>			
<b>Data entry &amp; Analysis</b>			
<b>Report preparation&amp; Submission</b>			

### **9.5 Sample size**

Total -	40
Patients -	30
Healthy volunteers -	10

### **9.6. SELECTION CRITERIA**

#### **9.6.1. INCLUSION CRITERIA**

- Age group:18-50
- Pallor of eyes
- Breathlessness on exertion
- Palpitation
- Loss of appetite
- Pallor of the skin and mucous membrane
- Giddiness
- Facial edema

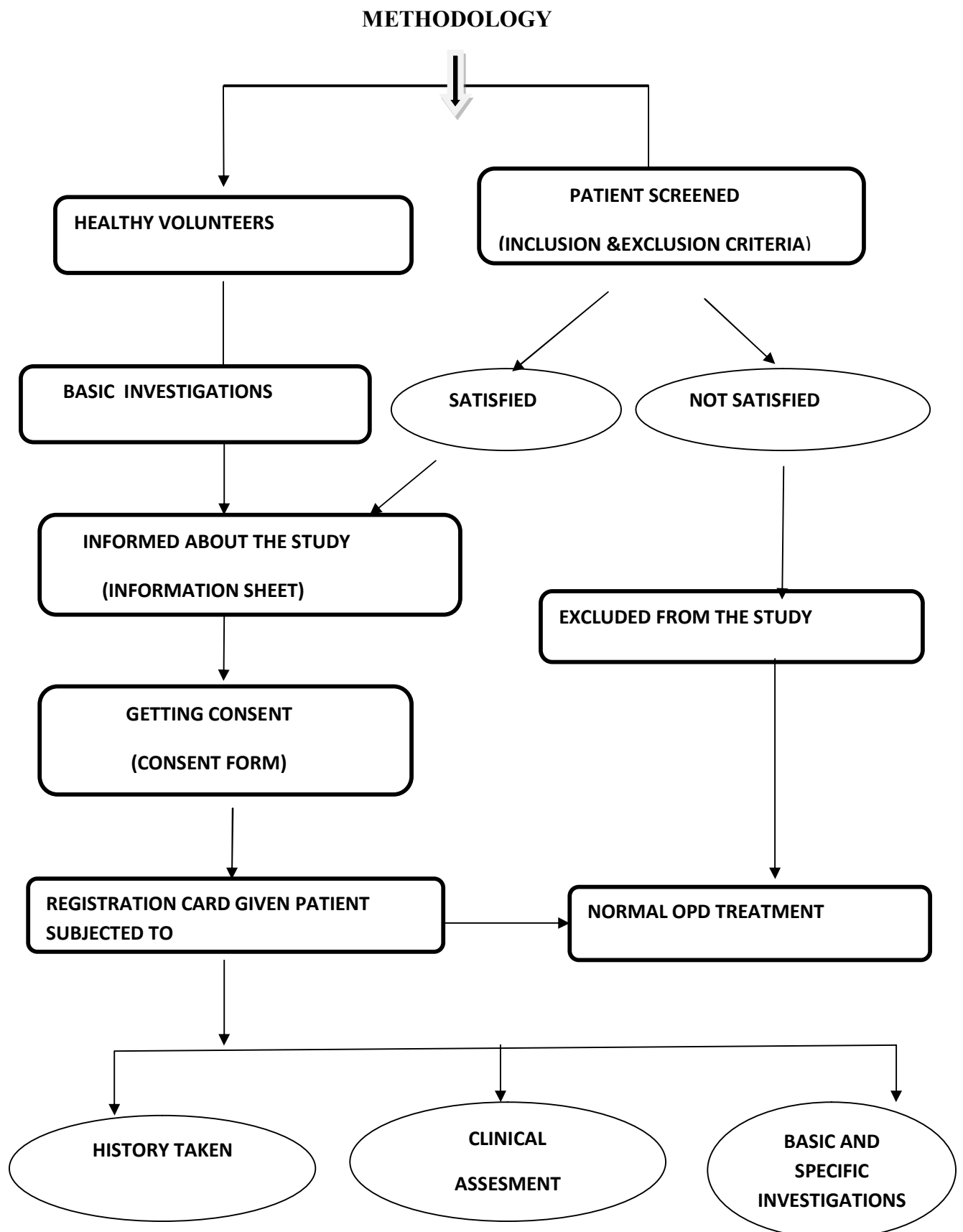
#### **9.6.2. EXCLUSION CRITERIA**

- Anemia of chronic diseases
- Pitha paandu(Hypothyroidism)
- Vulnerable group(pregnancy,lactation)
- Bleeding disorders
- Post surgery, post trauma

### **9.7. STUDY ENROLLMENT**

- In the study, patients reporting at the OPD & IPD of Ayothidoss Pandithar Siddha Hospital with the clinical symptoms of “seya kamaalai” will be referred to the Research group. Those patients will be screened using the screening proforma (Form-I) and examined clinically for enrolling in the study based on the inclusion and exclusion criteria. Based on the inclusion criteria the patients will be included first and excluded from the study on the same day if they hit the exclusion criteria.
- The patients who are to be enrolled would be informed (Form IV-A) about the study, and the objectives of the study in the language and terms understandable for them.
- After ascertaining the patients’ willingness, a written informed consent would be obtained from them in the consent form (Form IV).
- All these patients will be given unique registration card in which patients’ Registration number of the study, Address, Phone number and Doctors phone number etc. will be given, so as to report to research group easily if any complication arises.
- Complete clinical history, complaints and duration, examination findings all would be recorded in the prescribed proformae in the history and clinical assessment forms separately. Screening Form- I will be filled up; Form I-A, Form –II and Form –III will be used for recording the patient’s history, clinical examination of symptoms and signs and lab investigations respectively
- Ten healthy volunteers from both the sexes will be selected for control group.

## 9.8. METHODOLOGY



## 9.9. DATA COLLECTION FORMS:

- Required information will be collected from each patient by using following forms.

<b>Form –I</b>	Screening and selection Proforma
<b>Form –IA</b>	History Proforma on enrollment
<b>Form II</b>	Clinical Assessment on enrollment
<b>Form –III</b>	Laboratory investigations on enrollment, during the study
<b>Form –IV</b>	Consent form (Vernacular and English versions)
<b>Form -IV- A</b>	Patient Information Sheet (Vernacular and English versions)

## 9.10. DATA MANAGEMENT

- After enrolling the patient in the study, a separate file for each patient will be opened and all forms will be filed in the file. Study No. and Patient No. will be entered on the top of file for easy identification and arranged in a separate rack at the concerned OPD unit. Whenever study patient visits OPD during the study period, the respective patient file will be taken and necessary recordings will be made at the assessment form or other suitable form.
- The screening forms will be filed separately.
- The Data recordings will be monitored for completion and adverse event by HOD and any missed data found out during the study, will be collected from the patient, but the time related data will not be recorded retrospectively
- All collected data will be entered using MS access / excel software onto computer.
- Investigators will be trained to enter the patient data and cross checked by Senior Research Officer and HOD.

### **9.11. STATISTICAL ANALYSIS:**

All collected data will be entered into computer using MS access / MS excel software by the investigator. The data will be analysed using STATA software under the guidance of SRO (stat), NIS. The level of significance will be 0.05. Descriptive analysis will be made and necessary tables/graphs generated to understand the profile of the patients included in the study. Then statistical analysis for significance of different diagnostic characteristics will be done. Student 't' test and 'chi-square' test are proposed to be performed for quantitative and qualitative data.

### **9.12. INVESTIGATIONS DURING THE STUDY**

The patients will be subjected to basic and specific investigations during the study which include Hb, MCH, MCV, MCHC, PCV, Smear Study, TC, DC, ESR, Blood sugar, RFT, LFT, Lipid profile, in Blood. Albumin, Sugar, Deposits in Urine. Ova, cyst and Occult blood in Motion.

### **9.13. TREATMENT DURING THE STUDY:**

Normal treatment procedure followed in Department of Noi Naadal, NIS will be prescribed to the study patients and the treatment will be provided at free of cost.

### **9.14. OUT COME OF STUDY**

- Establishing the diagnostic characteristics of “SEYA KAMAALAI” through
  - (1). Eight fold examination
  - (2). Manikkadainool & Astrology
  - (3). Yakkai elakkanam
- Analysis of Sage yugimuni's symptomatology and categorizing the results with present day modern classification of diseases which may reinforce and augment the understanding and diagnosis of the disease “SEYA KAMAALAI” and its management mentioned in Siddha literature.

### **9.15. ETHICAL ISSUES:**

1. Patients will be examined and screened unbiased manner and will be subjected to the criteria.

2. Informed consent will be obtained from the patient explaining in the understandable language to the patient.

3. The data collected from the patient will be kept confidentially. The patient will be informed about the diagnosis.

4. To prevent any infection, while collecting blood sample from the patient, only disposable syringes, disposable gloves, with proper sterilization of lab equipments will be used.

5. This study involves only the necessary investigations (mentioned in the protocol) and No other investigation would be done.

6. Patients will be subjected to X-ray investigation which does not cause any major hazards and is taken free of cost in National Institute of Siddha

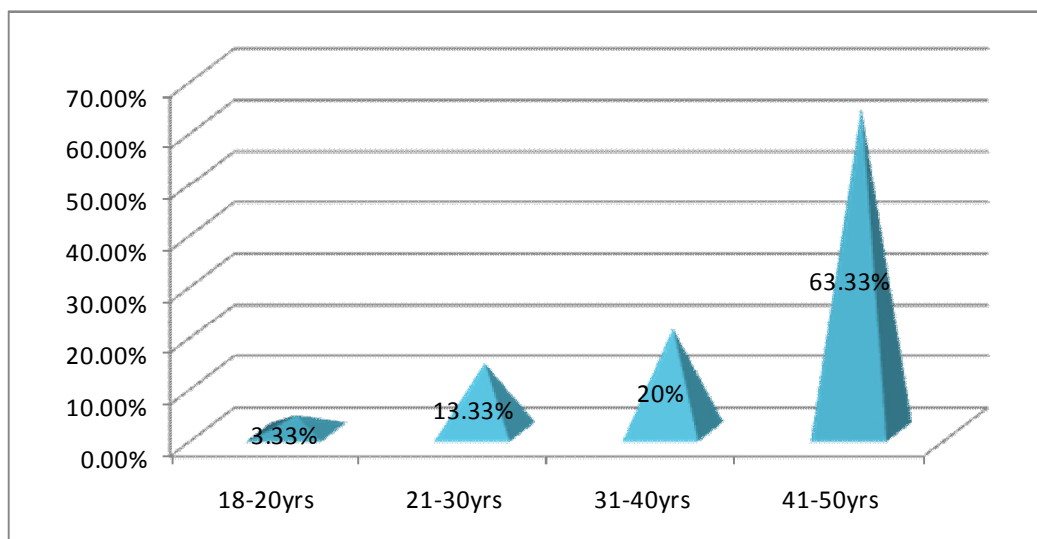
7. Normal treatment procedure followed in NIS will be prescribed to the study patients and the treatment will be provided at free of cost.

8. There will be no infringement on the rights of patient.

## **10. Observation and Results**

### **9.1. AGE DISTRIBUTION OF STUDY SAMPLE**

AGE	PATIENTS	
	NO	PERCENTAGE
18-20YRS	1	3.33
21-30YRS	4	13.33
31-40YRS	6	29.97
41-50YRS	19	53.28
TOTAL	30	100



### **OBSERVATION**

Among 30 cases, 3.33% of cases came under 18-20yrs, 13.33% of cases came under 21-30yrs, 20% of cases came under 31-40yrs and 63.33% of cases came under 41-50yrs.

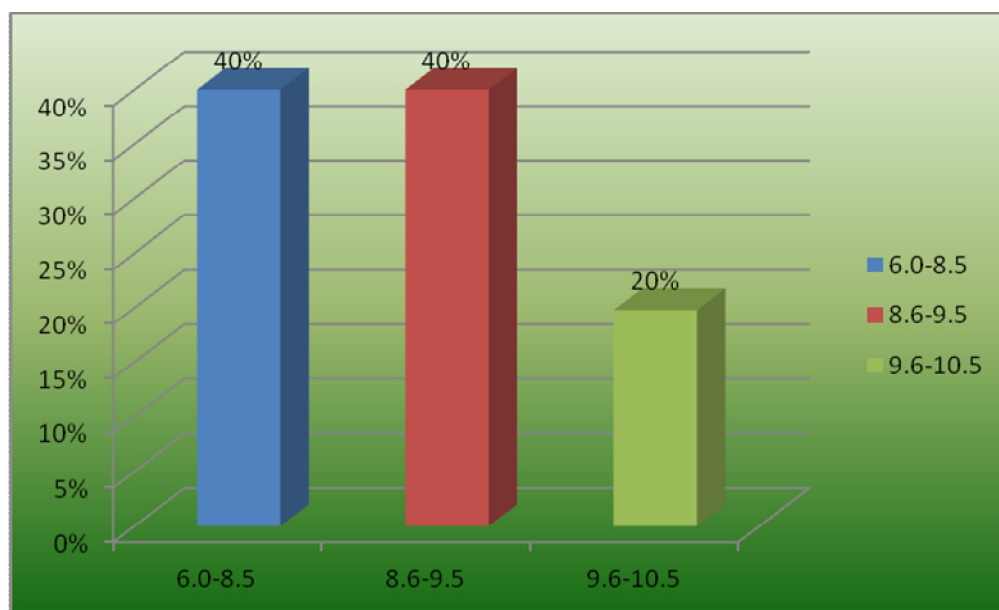


**INFERENCE:**

This observation reflects the OPD population age group.

**HAEMOGLOBIN:**

S.NO	HAEMOGLOBIN	PATIENTS IN NO	PERCENTAGE
1	6.0-8.5	12	40
2	8.6-9.5	12	40
3	9.6-10.5	6	20
	TOTAL	30	100

**OBSERVATION:**

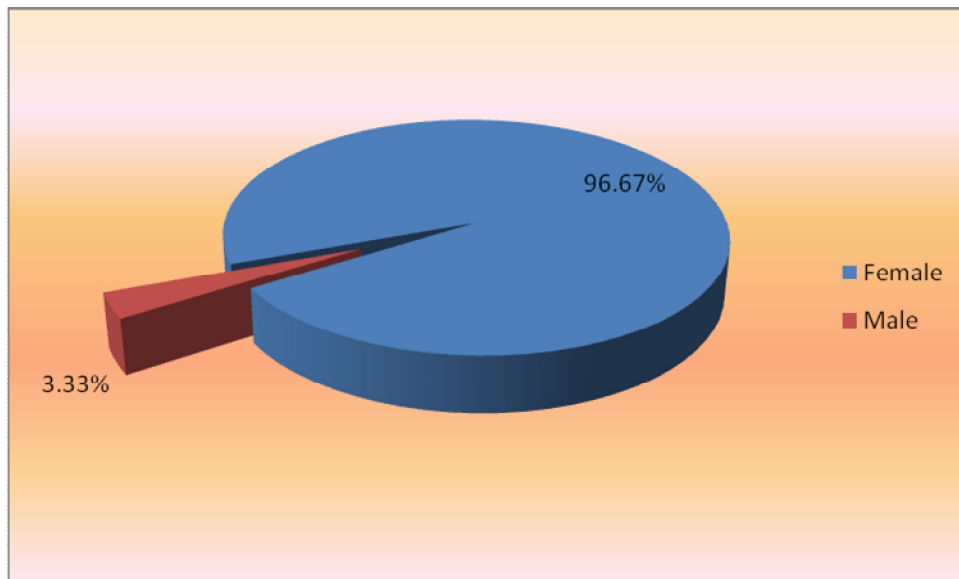
Out of 30 cases, 40% of cases had 6.0-8.5g/dL haemoglobin level, 40% of cases had 8.6-9.5g/dL haemoglobin level, 20% of cases had 9.6-10.5 g/dL haemoglobin level.

### INFERENCE:

In this , 40% of cases had 6.0-8.5 haemoglobin level, 40% of cases had 8.6-9.5 haemoglobin level

### 9.2. DISTRIBUTION OF GENDER

GENDER	NO OF CASES	PERCENTAGE
Female	29	96.67
Male	1	3.33
Total	30	100



### OBSERVATION:

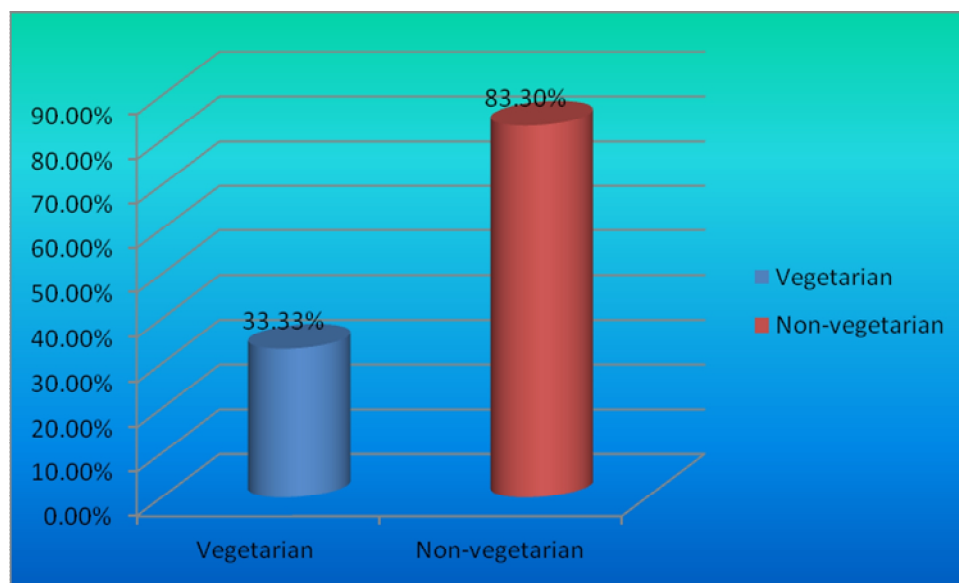
Out of 30 cases, 3.33% of cases were males, 96.67% of cases were Females.

## INFERENCE

Generally women are at high risk of iron deficiency as they have a regular blood loss due to menstrual disorders. Pregnant and lactating women are usually affected by iron deficiency anemia due to increased iron requirements.

### 9.3. FOOD HABITS

S.NO	FOOD HABITS	PATIENT S IN NO	PATIENTS IN PERCENTAGE
1	Vegetarian	10	33.33
2	Non-vegetarian	20	83.3
Total		30	100



### OBSERVATION:

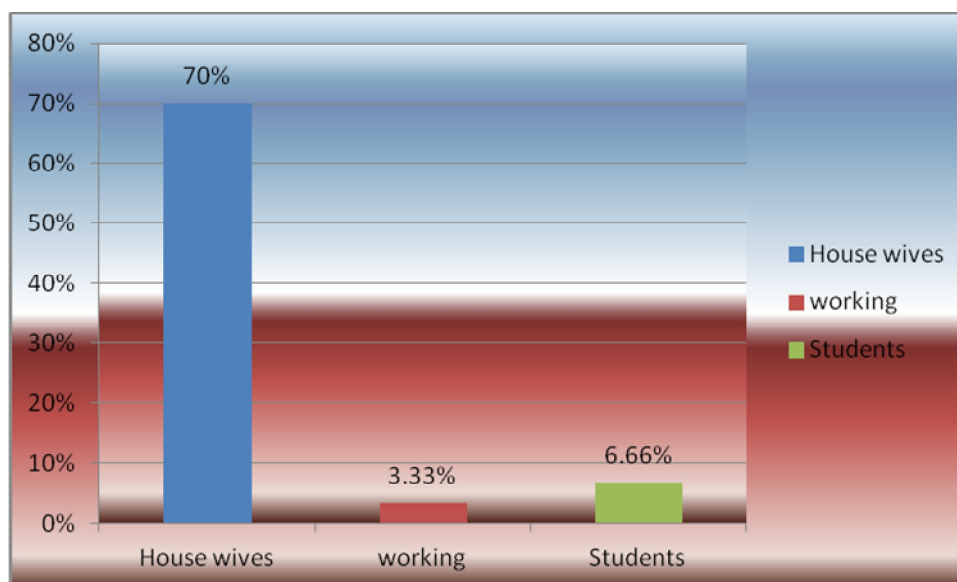
Out of the 30 cases, 33.33% of cases were Vegetarian, 66.66% of cases were Non Vegetarians.

## INFERENCE:

Though Iron from meat, poultry, and fish (i.e., heme iron) is absorbed two to three times more efficiently than iron from plants, most of the subjects in this study were non-vegetarians probably because non-vegetarians are more prevalent in the general population.

### 9.4. PATIENT'S OCCUPATION:

S.NO	OCCUPATIONAL STATUS	PATIENTS IN NO	PERCENTAGE
1	House wives	27	70
2	Working women	1	3.33
3	Students	2	6.66
	TOTAL	30	100



## OBSERVATION

Among 30 cases, 90% of cases are Home makers, 3.33% cases are students, 6.66% are working women.

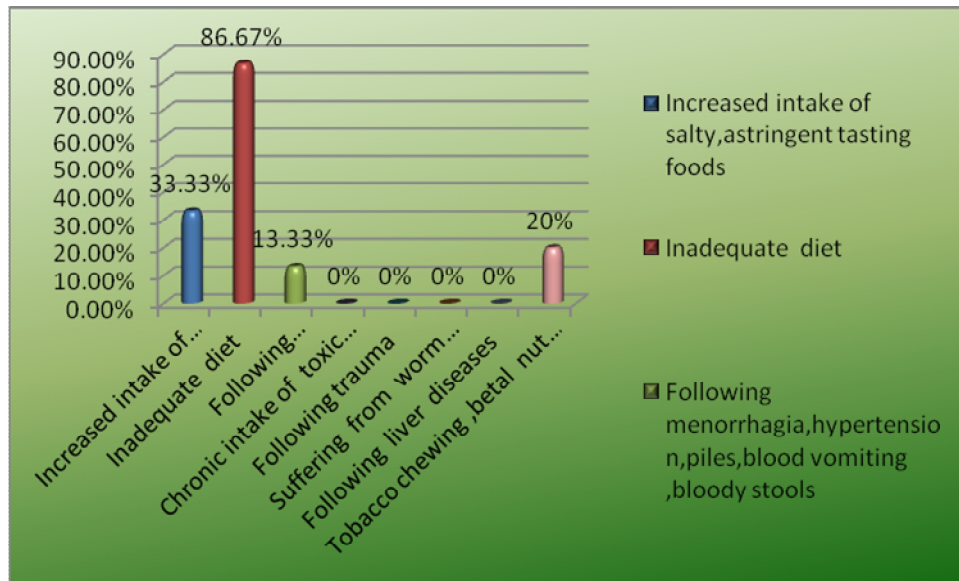
## INFERENCE

As per the data collected from 30 samples, Home makers were affected more (90%) probably due to the fact that most of the home makers are women at reproductive age who has improper feeding habits and gets regular blood loss due to menstruation.

Next to homemakers, Iron deficiency appear to be prevalent among school students (6.66%) as they follow unhealthy feeding habits such as skipping breakfast, eating less vegetables and fruits and more junk foods.

## 9.5. ETIOLOGY

ETIOLOGY	NO.OF CASES	PERCENTAGE
Increased intake of salty, astringent tasting foods	10	33.33
Inadequate diet	26	86.67
Following menorrhagia, hypertension, piles, blood vomiting ,bloody stools	4	13.33
Chronic intake of toxic medicines	0	0
Following trauma	0	0
Suffering from worm infection, tuberculosis, dysentery	0	0
Following liver diseases	0	0
Tobacco chewing, betal nut chewing, intake of sand and camphor	6	20



## OBSERVATION

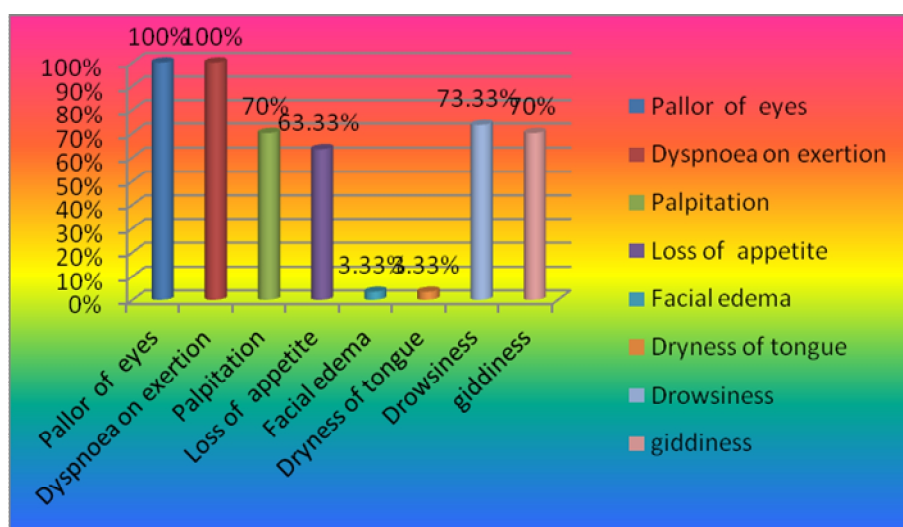
Out of 30 cases, 86.67% of cases had inadequate diet, 33.33% of cases had history of increased intake of hot, salt, astringent, bitter tasting foods, 20% of cases had Tobacco chewing, betel nut chewing, intake of sand and camphor, 13.33% of cases usually had menorrhagia, hypertension, piles, blood vomiting, bloody stools.

## INFERENCE

The above data supports the fact that inadequate diet without proper nutrition was the major cause for iron deficiency anemia globally. Increased intake of hot, salt, astringent etc affecting iron absorption from gut ranks second in causing Seya kamaalai. Tobacco chewing reduces utilization of iron and causes lot of vascular complications leading to Seya kamaalai. Regular blood loss causing significant reduction in hemoglobin content also result in Seya kamaalai.

## 9.6. CLINICAL FEATURES PRESENTED BY THE PATIENTS

S.NO	CLINICAL FEATURES	PATIENTS IN NO	PATIENTS PERCENTAGE
1	Pallor of eyes	30	100
2	Dyspnoea on exertion	30	100
3	Palpitation	21	70
4	Loss of appetite	19	63.33
5	Facial edema	1	3.33
6	Dryness of tongue	1	3.33
7	Drowsiness	22	73.33
8	giddiness	21	70



## OBSERVATION

Among 30 cases, 100% of cases had Pallor of eyes, dyspnoea on exertion, 73.33% of the cases had drowsiness, 70% of the cases had palpitation, 63.33% of the cases had loss of appetite, and 3.33% of the cases had dryness of tongue and facial edema.

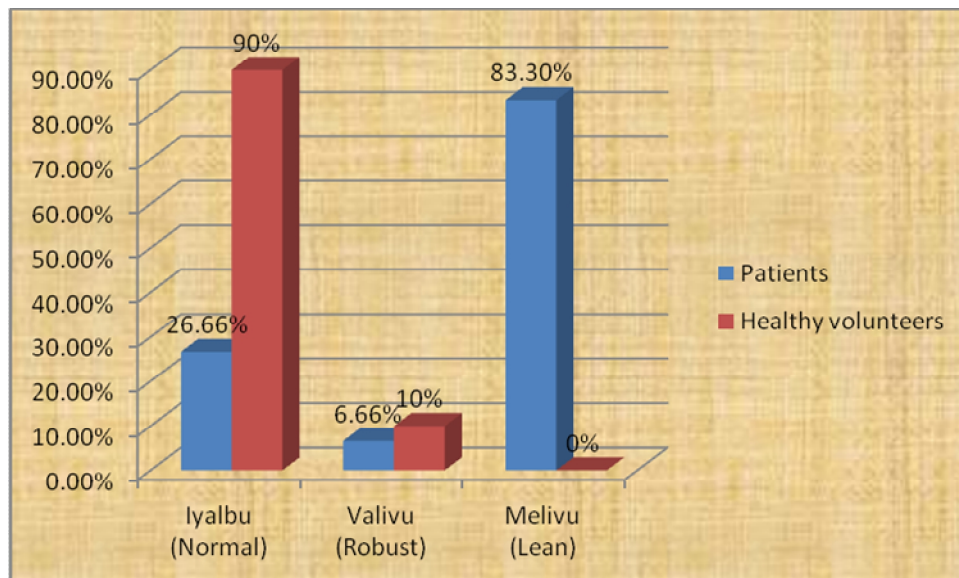
## INFERENCE

Pallor of eyes, dyspnoea on exertion are the classic symptoms of anemia and were expressed in all cases.

Drowsiness and palpitations occur only in very low hemoglobin levels, hence it is manifested in around 70% of individuals.

### 9.7. UDAL VANMAI

UDAL VANMAI	PATIENTS		HEALTHY VOLUNTEERS	
	NO	%	NO	%
Iyalbu (Normal)	8	26.66	9	90
Valivu (Robust)	2	6.66	1	10
Melivu (Lean)	20	83.3	0	0
Total	30	100	10	100



## OBSERVATION:

Out of 30 cases, 66.66% of cases had Melivu nilai, 26.66% of cases had Iyalbu nilai, 6.66% of cases had Valivu nilai.

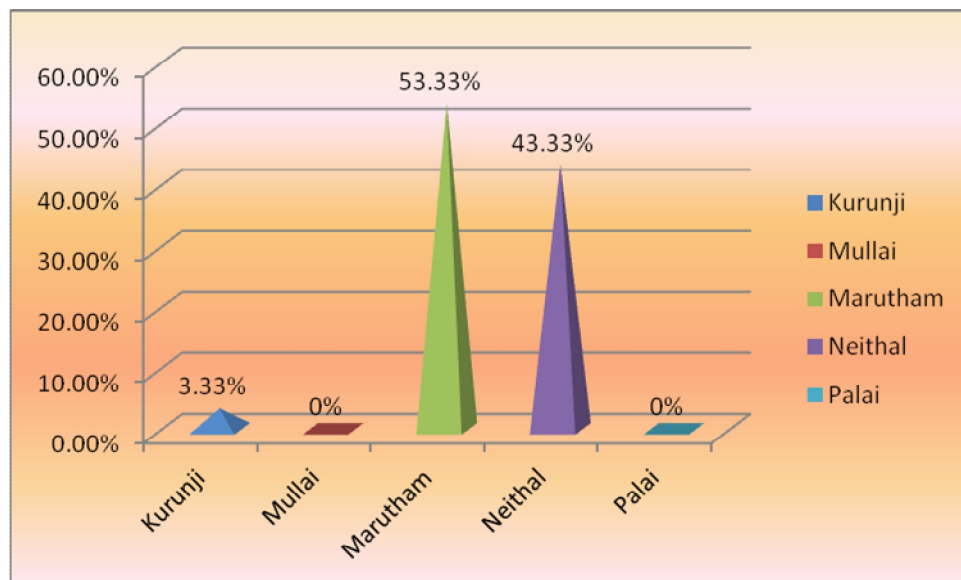


## INFERENCE:

Chronic iron deficiency results in decline in body growth and general health. Hence most of the cases have a lean body nature and 26.6% have normal body nature and very few have robust nature.

## 9.8. NILAM

S. NO	NILAM	PATIENTS		HEALTHY VOLUNTEERS	
		NO	%	NO	%
1	Kurunji	1	3.33	0	0
2	Mullai	0	0	0	0
3	Marutham	16	53.33	1	10
4	Neithal	13	43.33	9	90
5	Palai	0	0	0	0
Total		30	100	10	100



## OBSERVATION

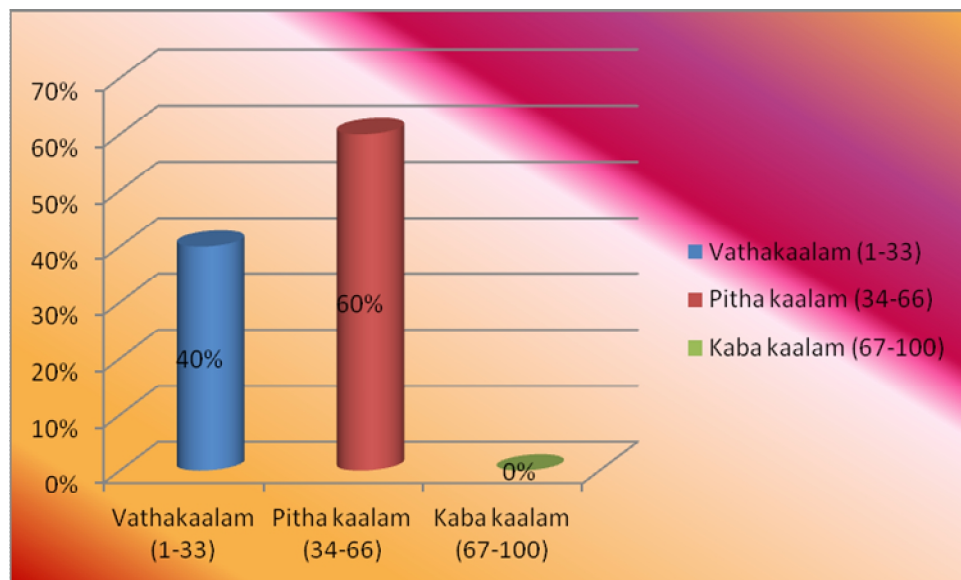
Out of 30 cases, 53.33% cases were living in Marutham nilam, 43.33% cases were living in Neithal nilam, and 3.33% cases were living in Kurunji nilam.

## INFERENCE:

As per the report, most of the cases were from Marutham region and Neithal region. However, as this is a single centered study done only in National Institute of Siddha, prevalence in various regions cannot be inferred properly.

## 9.9. KAALAM (AGE) DISTRIBUTION

S.NO	AGE	PATIENTS IN NO	PATIENTS IN PERCENTAGE
1	Vathakaalam (1-33)	12	40
2	Pitha kaalam (34-66)	18	60
3	Kaba kaalam (67-100)	0	0
Total		30	100



## OBSERVATION

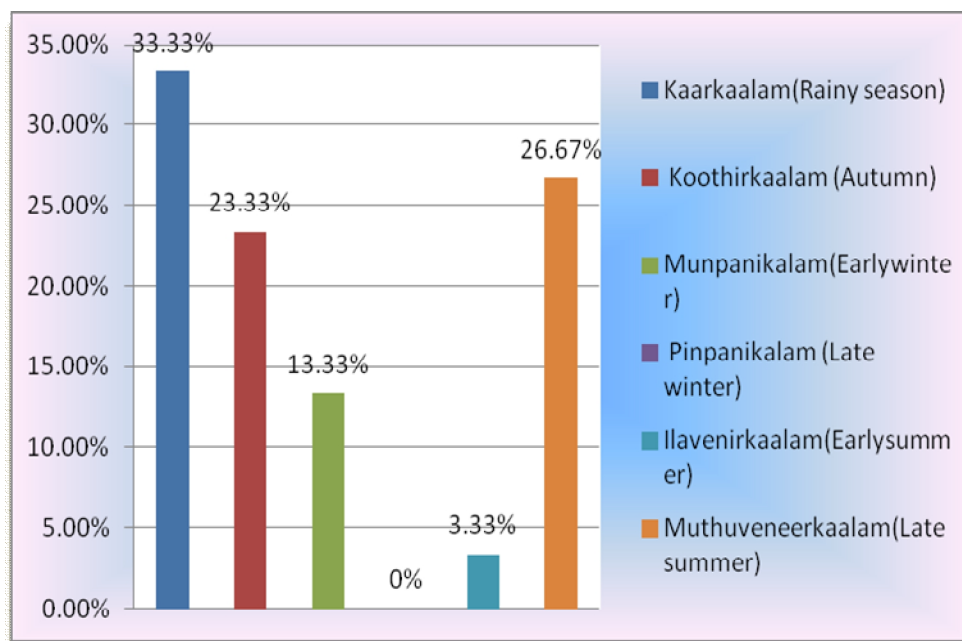
Among 30 cases, 60% of cases came under pitha kaalam ie, 34-66yrs, 40% of cases came under vatha kaalam (1-33yrs).

## INFERENCE

In the study majority of the patients fell in Pitha kaalam. This observation supports the Siddha literature, which states that Seya kamaalai is due to vitiated pitha humour.

### 9.10. NOI UTRA KAALAM

S.NO	NOI UTRA KAALAM	PATIENTS IN NO	PATIENTS IN PERCENTAGE
1	Kaarkaalam (Rainy season)	10	33.33
2	Koothirkaalam (Autumn)	7	23.33
3	Munpanikalam (Earlywinter)	4	13.33
4	Pinpanikalam (Late winter)	0	0
5	Ilavenirkaalam (Earlysummer)	1	3.33
6	Muthuveneerkaalam (Late summer)	8	26.67
Total		30	100



## **OBSERVATION**

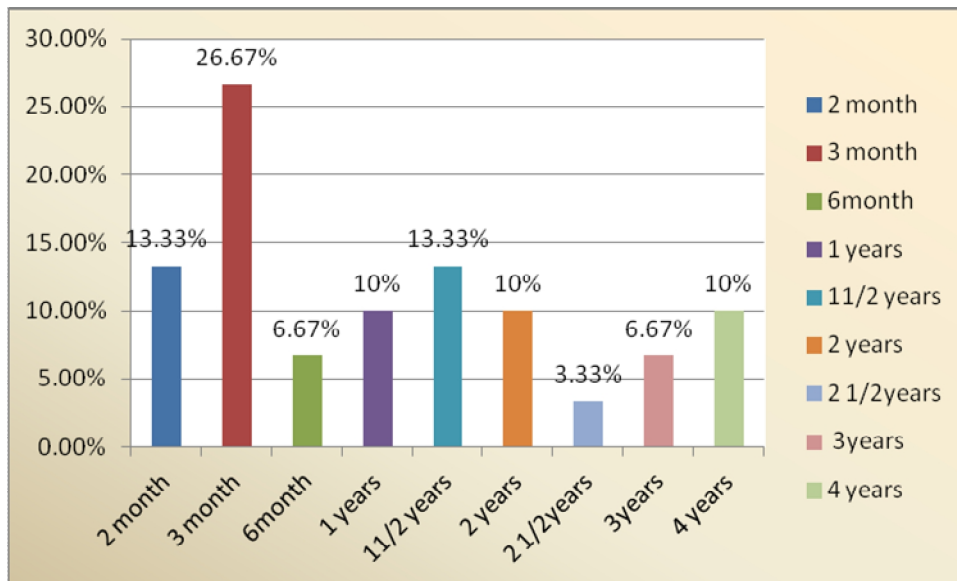
Among 30 cases, 33.33% of the cases had the onset of disease at kaarkaalam, 26.67% of cases had the onset of disease at muthuvenir kaalam, 23.33% of cases had the onset of disease at koothirkaalam, 13.33% of cases had the onset of disease at munpanikkaalam, and 3.33% of cases had the onset of disease at Ilavenirkaalam.

## **INFERENCE**

Majority of cases had their diseases in kaarkaalam and muthuvenir kaalam. Generally our body's immune levels are low during this time (aathaana kaalam) as per Siddha literatures. So there is high chance of getting various infections, which may underlie the causes for Seya kamaalai.

### **9.11. DURATION OF ILLNESS**

DURATION	NO.OF CASES	PERCENTAGE
2 month	4	13.33
3 month	8	26.67
6month	2	6.67
1 years	3	10
11/2 years	4	13.33
2 years	3	10
2 1/2years	1	3.33
3years	2	6.67
4 years	3	10
TOTAL	30	100



### OBSERVATION

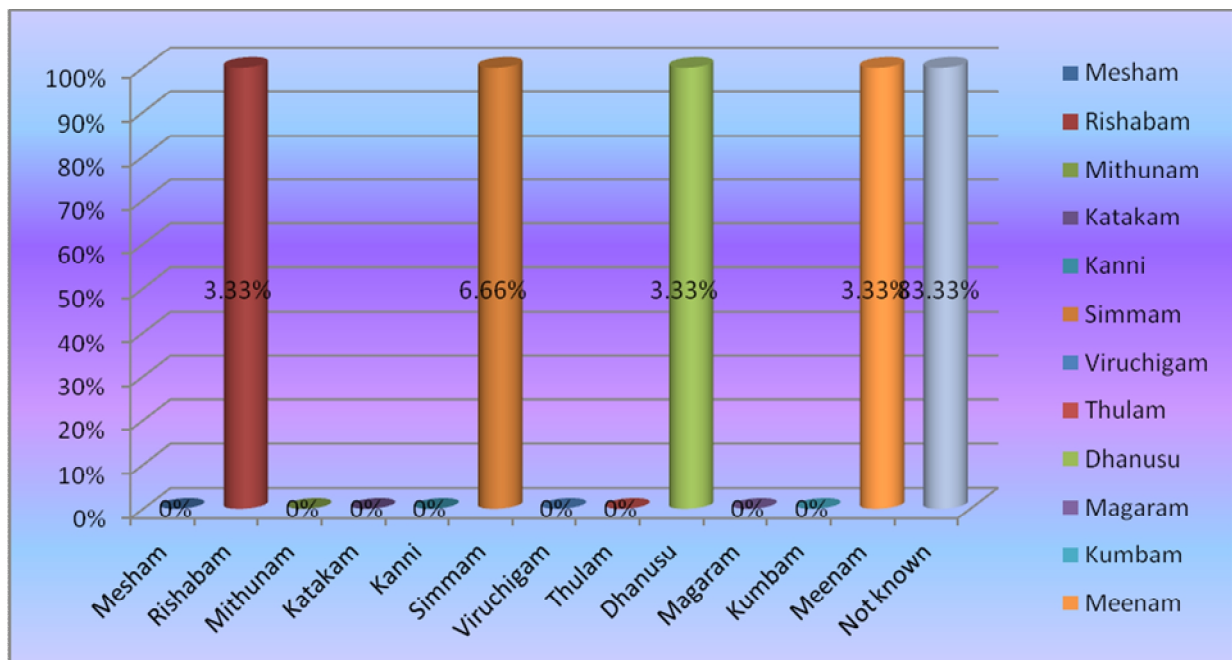
Out of 30 cases, 26.67% of cases had the disease for 3 months, 13.33% of cases had the disease for 2 months, for 11 months and for 2 years respectively. 10% of cases had the disease for 1 year and 2 year. 6.67% of case had the disease for 6 month and for 3 years, 3.33% of case had the disease for 21 month and for 2 years.

### INFERENCE:

Majority of the cases suffering from this disease had duration of 3 months. Usually duration of illness in anemia depends on its cause, as body restores its normal hb level once the root cause is rectified. If the cause for IDA is due to inadequate diet it can be restored easily by proper diet. But if it is due to any chronic disorder, it may take a long time.

## 9.12. RASI (ZODIAC SIGN) DISTRIBUTION

S. NO	RASI	PATIENTS IN NO	PATIENTS IN PERCENTAGE
1	Mesham	0	0
2	Rishabam	1	3.33
3	Mithunam	0	0
4	Katakam	0	0
5	Kanni	0	0
6	Simmam	2	6.66
7	Viruchigam	0	0
8	Thulam	0	0
9	Dhanusu	1	3.33
10	Magaram	0	0
11	Kumbam	0	0
12	Meenam	1	3.33
13	Not known	25	83.33
Total		30	100



## OBSERVATION

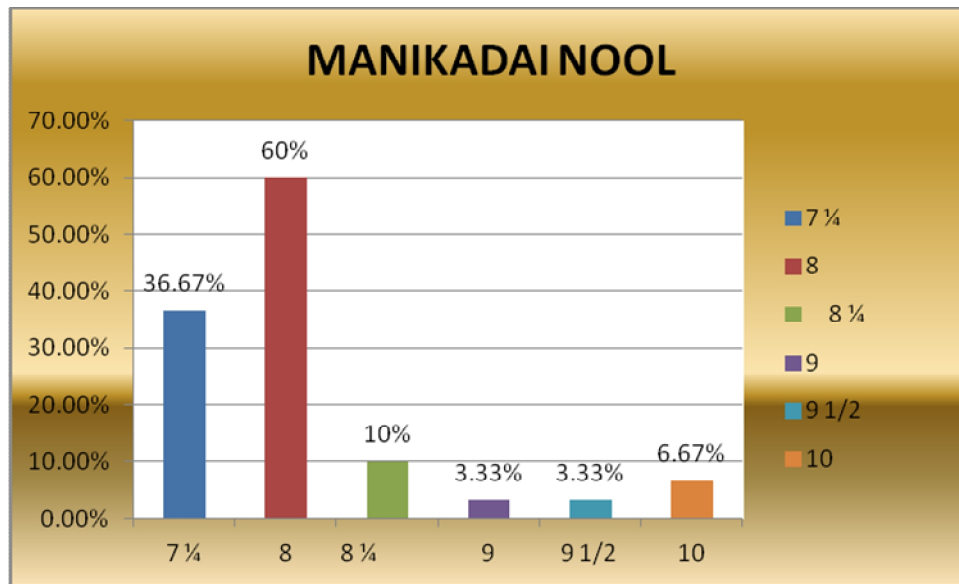
Among 30 cases 6.67% of cases were documented under simmam, 3.33% of cases were documented under rishabam, simmam, dhanusu, meenam. 83.33% comes under not known category.

## INFERENCE

No specific inference could be made.

### 9.13. MANIKADAI NOOL (WRIST CIRCUMETRIC SIGN)

S.NO	MANIKADAI ALAVU (Finger breadths)	PATIENTS		HEALTHY VOLUNTEERS	
		NO	%	NO	%
1	7 ¼	11	36.67	-	-
2	8	18	60	-	-
3	8 ¼	3	10	-	--
4	9	1	3.33	2	20
5	9 1/2	1	3.33	1	10
6	10	2	6.67	2	20
TOTAL		30	100	10	100



## OBSERVATION

Out of the 30 cases, 60% of cases had 8 viralkadai alavu, 36.67% of cases had 7 1/4 viral kadai alavu, 10% of cases had 8 1/4 viralkadai alavu, 3.33% of cases had 9 and 9 1/2 viral kadai alavu, 6.67% of cases had 10viralkadai alavu.

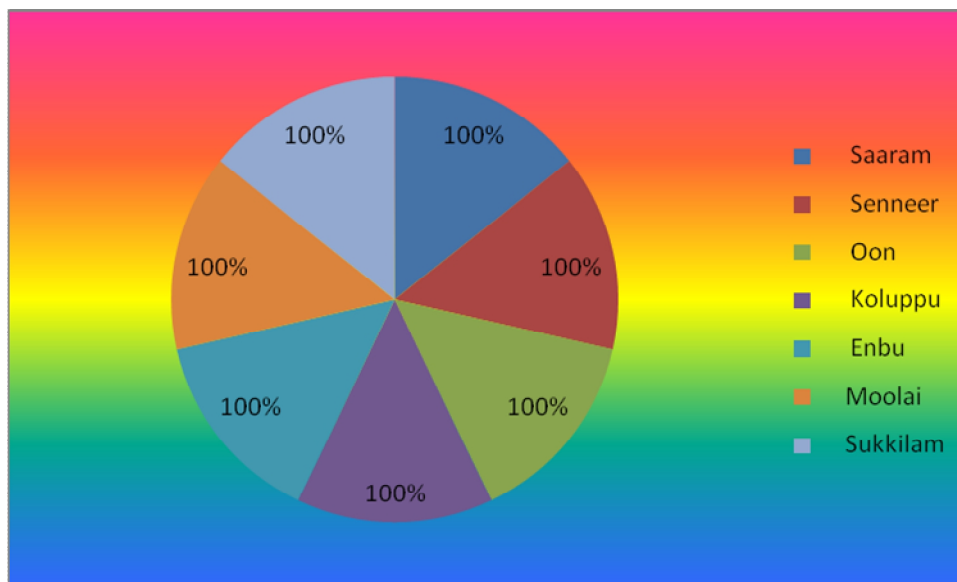
## INFERENCE:

In Manikkadai nool study, a sizable percentage of cases had Manikadai measurements of 8 fbs.. In the Agasthiyar soodamani kayiru soothiram a treatise written by Sage Agasthiyar, the wrist circumetric sign for vellupu and pitha miguthi has been given as 9 1/2 and 7 1/4.



#### 9.14. UDAL THATHUKKAL

S.NO	UDAL THATHUKKAL	PATIENTS	
		NO	%
1	Saaram	30	100
2	Senneer	30	100
3	Oon	30	100
4	Koluppu	30	100
5	Enbu	30	100
6	Moolai	30	100
7	Sukkilam	30	100



#### OBSERVATION

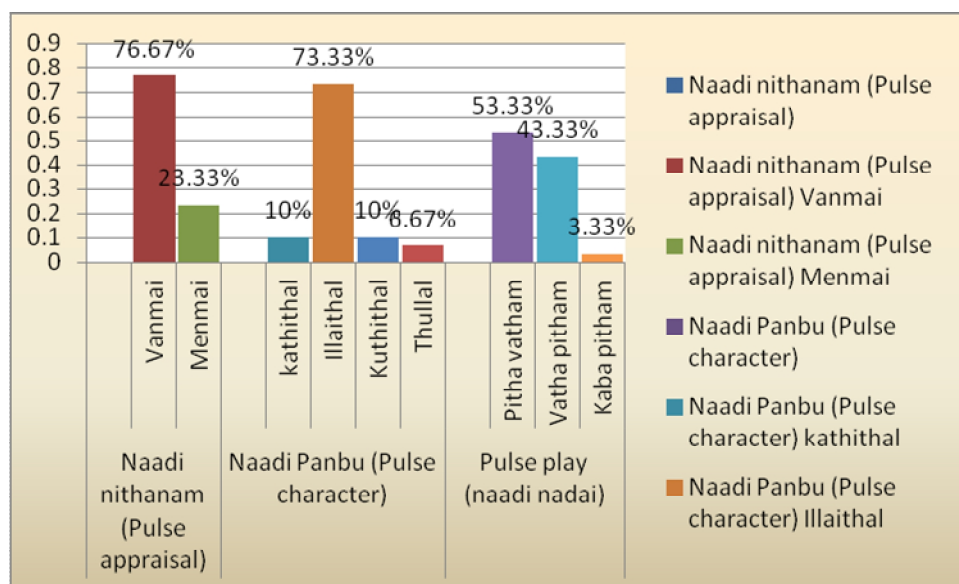
Out of 30 cases, all the cases had deranged all Udal thaathukkal.

#### INFERENCE

All the cases had all the 7 udal thaathukkal affected ,because when senneer gets affected .It affects all other udal thatukkal over time.

### 9.15. NAADI (PULSE)

NAADI		PATIENTS		HEALTHY VOLUNTEERS	
		NO	%	NO	%
Naadi nithanam (Pulse appraisal)	Vanmai	23	76.67	5	50
	Menmai	7	23.33	5	50
	Total	30	100	10	100%
Naadi Panbu (Pulse character)	kathithal	3	10	-	-
	Illaithal	22	73.33	2	20
	Kuthithal	3	10	4	40
	Thullal	2	6.67	4	40
	Total	30	100	-	-
Pulse play (naadi nadai)	Pitha vatham	16	53.33	8	80
	Vatha pitham	13	43.33	-	-
	Kaba pitham	1	3.33	2	20
	Total	30	100	10	100



## **OBSERVATION**

### **Patients:**

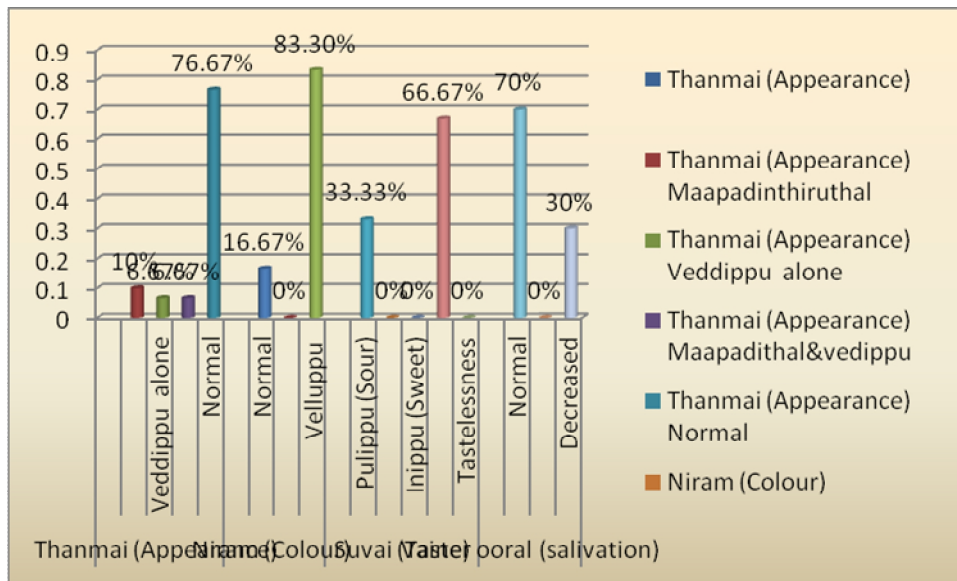
Out of the 30 cases, 76.67% of cases had Vanmai character, 23.33% cases had Menmai character in Naadi nithanam. Among 30 cases, 73.33% of cases had Illaithal, 10% of cases showed kathithal and kuthithal, 6.67% of the cases Thullal, 73.33% of cases had kuthithal alone in their Naadi panbu. Among 30 cases, 43.33% of cases had the Naadinadai of Vathapitham, 3.33% cases had Kabapitham, 53.33% cases had Naadinadai of Pithavatham.

### **Healthy volunteers:**

Out of the 10 cases, 50% of cases had Vanmai character and 50% of cases had Menmai character in Naadi nithanam. Among 10 cases, 20% of cases showed Illaithal, 40% of cases had kuthithal and 40% of cases had thullal character in their Naadi panbu. Among 10 cases, 80% of cases had the naadinadai of Vatha pitham, and 20% of cases had Kaba pitham.

## 6. NAA

NAA		PATIENTS		HEALTHY VOLUNTEERS	
		NO	%	NO	%
Thanmai (Appearance)	Maapadinthiruthal	3	10	6	60
	Veddippu alone	2	6.67	-	-
	Maapadithal& vedippu	2	6.67	-	-
	Normal	23	76.67	4	40
	Total	30	100	10	100%
Niram (Colour)	Normal	5	16.67	3	30
	Manjal	0	0	6	60
	Velluppu	25	83.3	1	10
	Total	30	100	10	100%
Suvai (Taste)	Pulippu (Sour)	10	33.33	-	-
	Kaippu (Bitter)	0	0	-	-
	Inippu (Sweet)	0	0	-	-
	Normal	20	66.67	1	10
	Tastelessness	0	0	9	90
	Total	30	100	10	100
Vainer oorai (salivation)	Normal	21	70	10	100
	Increased	0	0	-	-
	Decreased	9	30	-	-
	Total	30	100	10	100%

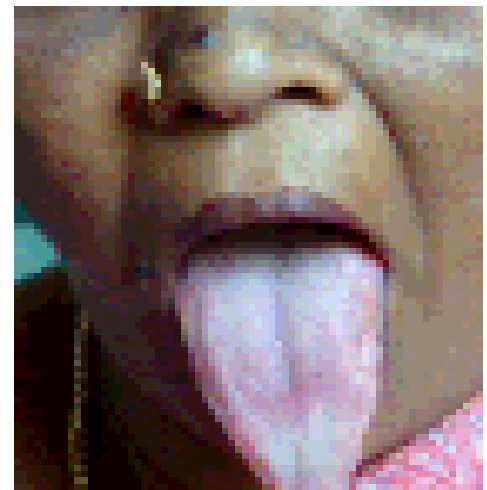


### (NAA - TONGUE)



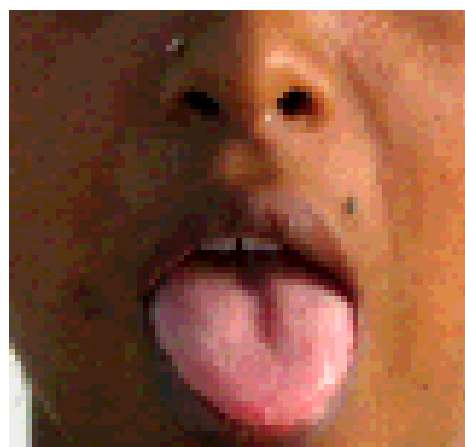
**FINDING : MAAPADITHAL**

**OP NOC91707**



**FINDING : PALLOR**

**OP NO:C76982**



**FINDINGS:NORMAL TONGUE OP NO:D005910**

## **OBSERVATION**

Among 30 cases, 6.67% of cases had fissure alone in their tongue, 10% of cases had coated tongue alone, 6.67% of cases had both coated tongue and fissure, 76.67% cases had normal tongue. Among 30 cases, 76.67 % of cases had normal colour tongue, 16.67% of cases had pale and 83.30% of cases had yellow colour change. Among 30 cases, 33.33% of cases had sour taste in their tongue, 66.66% of the cases had no abnormal taste felt in their tongue. Among 30 cases, 30% of cases had decreased salivation, 70% had normal salivation. 16.67% of cases had decreased salivation, 16.67% cases had increased salivation, and 33.33% had normal salivation.

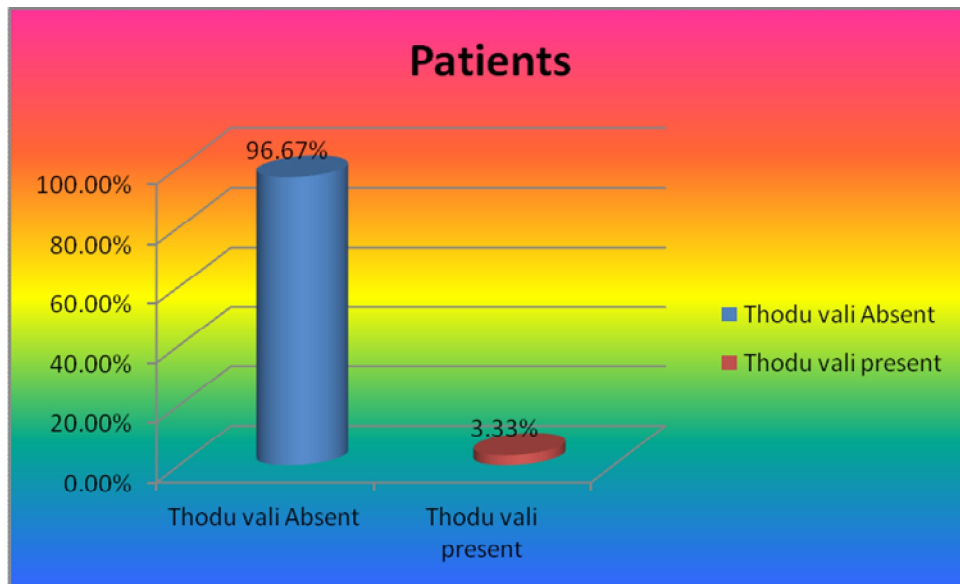
## **INFERENCE**

In the study majority of cases had pallor of tongue, no abnormal taste in tongue and normal salivation. Pallor of tongue is a sign of anaemia.

In Healthy volunteers, no specific inference could be made out in this study from the examination of tongue (Naa). So in healthy individuals, Kaippu & Pullippu suvai (taste) in tongue can be taken as a sign of Kaba and Pitha humour derangements and necessary precautions can be taken.

### 9.17. NIRAM, MOZHI AND MEIKURI

NAME OF THE PARAMETER	THANMAI (CHARACTER)		PATIENTS		HEALTHY VOLUNTEERS	
			NO	%	NO	%
<b>Niram</b> (complexion)	<b>Karuppu (Dark)</b>		<b>9</b>	<b>30</b>	-	-
	<b>Manjal</b>		<b>1</b>	<b>3.33</b>	-	-
	<b>Velluppu</b>		<b>2</b>	<b>6.67</b>	-	-
	<b>Wheatish</b>		<b>18</b>	<b>60</b>	<b>10</b>	<b>100</b>
	<b>Total</b>		<b>30</b>	<b>100</b>	<b>10</b>	<b>100</b>
<b>Mozhi</b> (voice)	<b>Thanindhaoli</b> (Low Pitch)		<b>6</b>	<b>20</b>	-	-
	<b>Urathaoli (High Pitch)</b>		<b>6</b>	<b>20</b>	-	-
	<b>Samaoli(Normal pitch)</b>		<b>18</b>	<b>60</b>	<b>10</b>	<b>100</b>
	<b>Total</b>		<b>30</b>	<b>100</b>	<b>10</b>	<b>100</b>
<b>Meikuri</b>	<b>Veppam</b> (Warmth)	<b>Mitha veppam</b>	<b>21</b>	<b>8</b>	<b>8</b>	<b>80</b>
		<b>Migu veppam</b>	<b>9</b>	-	-	-
		<b>Thatpam</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>20</b>
		<b>Total</b>	<b>30</b>	<b>10</b>	<b>10</b>	<b>100</b>
	<b>Viyarvai</b> (Sweating)	<b>Normal</b>	<b>29</b>	<b>10</b>	<b>10</b>	<b>100</b>
		<b>Increased</b>	<b>1</b>	-	-	-
		<b>Total</b>	<b>30</b>	<b>10</b>	<b>10</b>	<b>100</b>
	<b>Thodu vali</b> (Tenderness)	<b>Absent</b>	<b>29</b>	<b>10</b>	<b>10</b>	<b>100</b>
		<b>Present</b>	<b>1</b>	-	-	-
		<b>Total</b>	<b>30</b>	<b>10</b>	<b>10</b>	<b>100</b>



### Observation:

Among the 30 cases, 30% of cases were of dark complexion, 3.33% of cases had manjal complexion, 6.67% of cases had velluppu udal niram, 60% cases had normal (wheatish) complexion. Among 30 cases, 20% of cases had high pitched voice, 20% of cases had low pitched voice, 60% had normal voice. Among 30 cases, 30% of cases had migu veppam, 70% of cases had mitha veppam. Among 30 cases, 20% of cases had increased (sweating) viyarvai, 80% had normal sweating, Among 30 cases, 3.33% of cases had thoduvali (Tenderness), 96.67% of cases were without thoduvali.

### INFERENCE:

As most of the Indians are wheatish in colour, 60% of patients found to be wheatish. No specific inference could be made out in this study from the examination of niram.

In Healthy volunteers, no specific inference could be made out in this study from the examination of niram, mozhi and meikuri.



### 9.18. VIZHI (EYE)

NAME OF THE PARAMETER		THANMAI (CHARACTER)	PATIENTS		HEALTHY VOLUNTEERS	
			NO	%	NO	%
VIZHI	NIRAM	Karuppu (Muddy)	0	0	-	-
		Manjal (Yellow)	0	0	-	-
		Sivappu (Red)	0	0	1	10
		Vellupu (pallor)	30	100	-	-
		No discolouration	0	0	9	90
		Total	30	100	10	100
	THANMAI	Peelai serthal only	4	13.33	0	0
		Increased kanner only	0	0	0	0
		Erichal only	0	0	0	0
		Peelai serthal& kaneer	0	0	0	0
		Peelai serthal & Erichal	0	0	0	0
		Erichal & kaneer	1	3.33	0	0
		All three	0	0	0	0
		Normal	25	83.33	0	0
		Total	30	100	10	100

**OP NO:C91376**



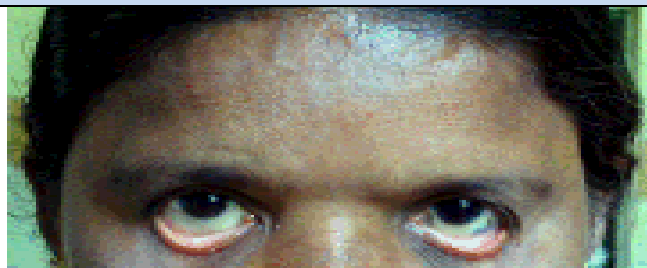
**FINDING : PALLOR OF EYES**

**OP NO:C86791**

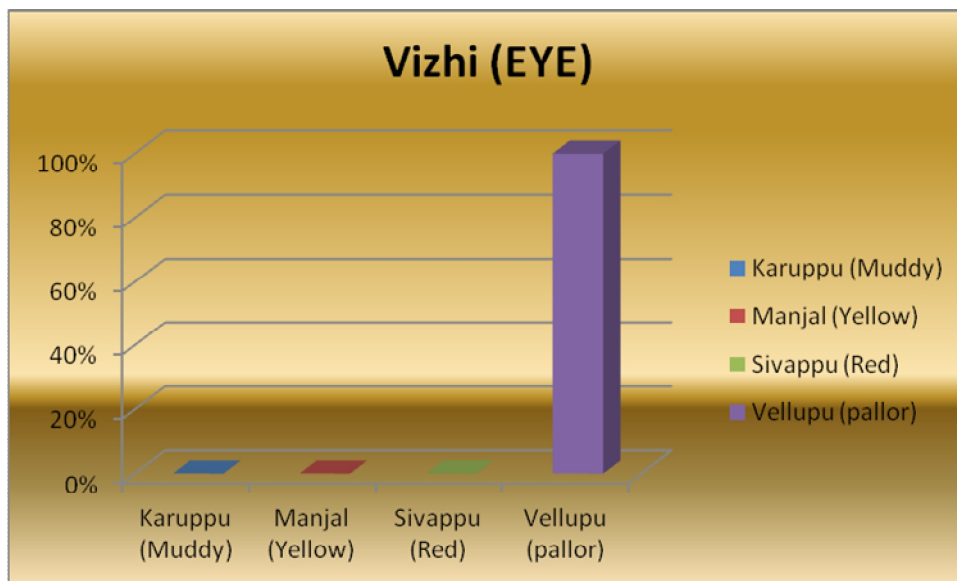


**FINDING : PALLOR OF EYES**

**OP NO:C76982**



**FINDINGS:PALLOR OF EYES**



### OBSERVATION

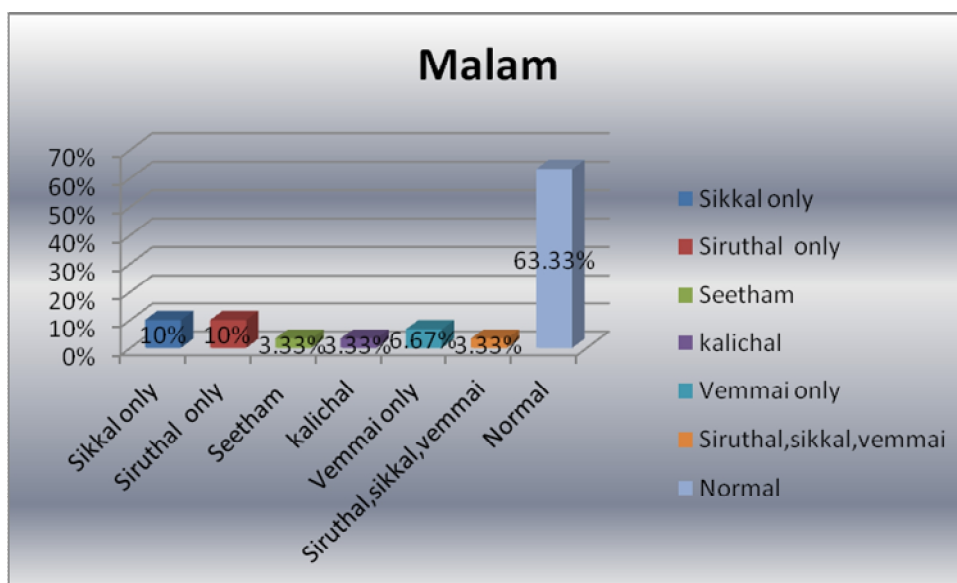
Among 30 cases 100% of cases had Vellupu vizhi. Out of 30 cases, 3.33% of cases had both erichal & kanneer, 13.33% of cases had Peelai serthal (mucous excrements) only, 83.33% of cases had normal eye.

### INFERENCE

Majority of cases in the study were seen with pallor of eyes .

### 9.19. MALAM

MALAM		PATIENTS		HEALTHY VOLUNTEERS	
		NO	%	NO	%
Thanmai	Sikkal only	3	10	1	10
	Siruthal only	3	10	0	0
	Seetham	1	3.33	0	0
	kalichal	1	3.33	0	0
	Vemmai only	2	6.67	0	0
	Siruthal,sikkal,vemmai	1	3.33	0	0
	Normal	19	63.33	9	90
	Total	30	100	10	100
Niram (Colour)	Karuppu (Dark)	0	0	0	0
	Manjal (normal)	28	93.33	10	100
	Vellupu (Pallor)	2	6.67	0	0
	Total	30	100	10	100



## OBSERVATION

Among 30 cases, 10% of cases had sikkal (constipation) only, 10% of cases had siruthal only, 3.33% of cases had Seetham (Mucosal mixing of stools), 3.33% of cases had kalichal, 6.67% of cases had vemmai only, 3.33% of cases had all sikkal,siruthal and vemmai together, 63.33% of cases had no thanmai abnormality.

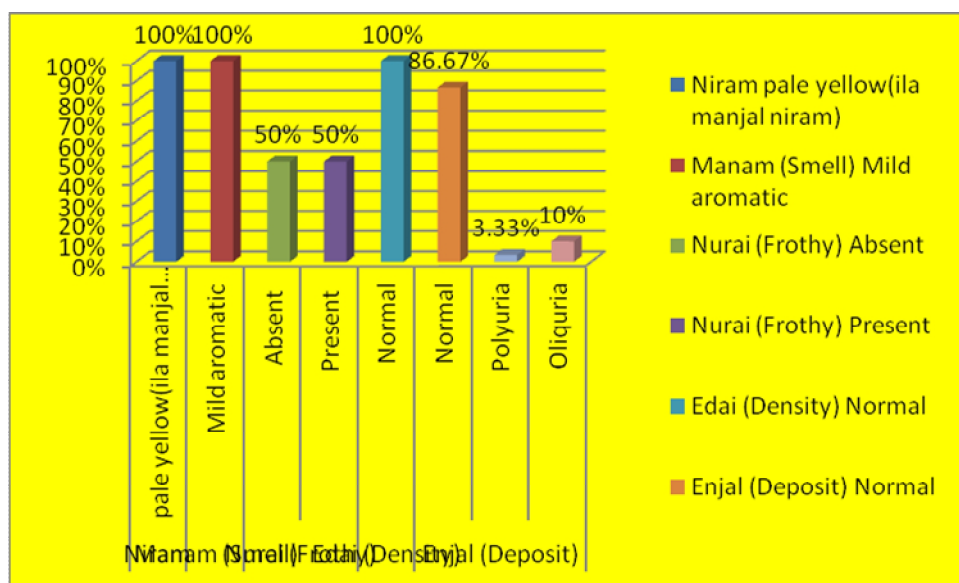
Among 30 cases, 93.33% of cases have manjal (normal) coloured stool, 6.67% of cases have velluppu (pallor) colored stool.

## INFERENCE

In the study majority of cases had yellow (normal) coloured stools. No specific inference could be made from malam (stool) examination.

**9.20. NEER**  
**I.NEERKURI**

NEERKURI	NO. OF CASES	NO.OF CASES	PERCENTAGE
<b>Niram</b>	<b>pale yellow(ila manjal niram)</b>	<b>30</b>	<b>100</b>
	<b>Total</b>	<b>30</b>	<b>100</b>
<b>Manam (Smell)</b>	<b>Mild aromatic</b>	<b>30</b>	<b>100</b>
<b>Nurai (Frothy)</b>	<b>Absent</b>	<b>15</b>	<b>50</b>
	<b>Present</b>	<b>15</b>	<b>50</b>
	<b>Total</b>	<b>30</b>	<b>100</b>
<b>Edai (Density)</b>	<b>Normal</b>	<b>30</b>	<b>100</b>
<b>Enjal (Deposit)</b>	<b>Normal</b>	<b>26</b>	<b>86.67</b>
	<b>Polyuria</b>	<b>1</b>	<b>3.33</b>
	<b>Oliquria</b>	<b>3</b>	<b>10</b>
	<b>Total</b>	<b>30</b>	<b>100</b>



## OBSERVATION

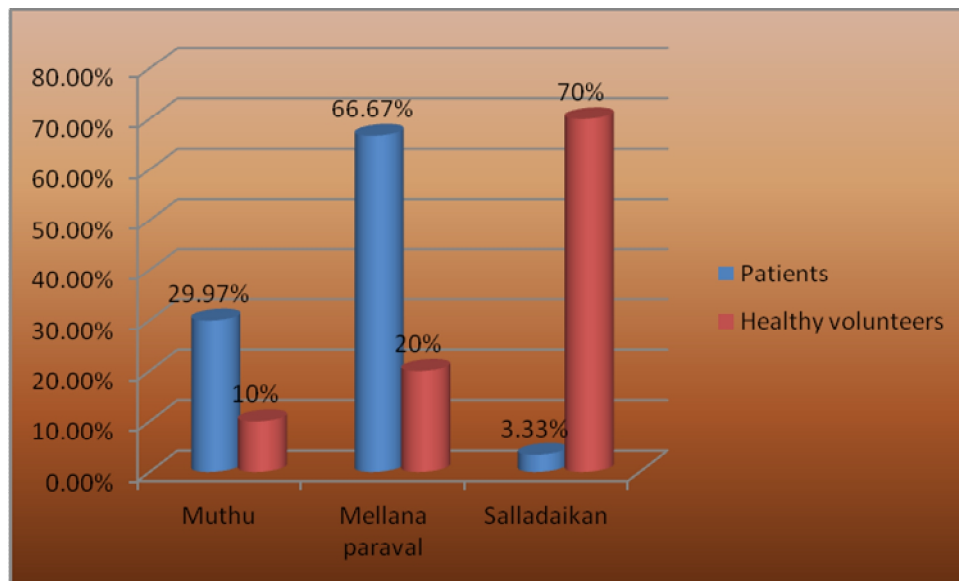
Among 30 cases, 100% of cases had pale yellow/straw coloured urine, 100% of cases had mild aromatic, 50% of the cases had nurai present, 50% cases had nurai (Froth) absent, 3.33% of cases had polyuria, 10% of cases had oliguria. 86.67% had normal urine alavu. 100% of the patients had increased edai (density)

## INFERENCE

Almost all the cases and healthy volunteers had normal urine Colour (Ila Manjal Niram) with mild aromatic smell and normal density and normal Enjal. No specific inference could be made out in this study from the examination of Neerkuri.

## II.NEIKKURI

S. NO	FEATURES OF OIL-ON-URINE SIGN	PATIENTS		HEALTHY VOLUNTEERS	
		NO	%	NO	%
1	Muthu	9	29.97	1	10
2	Mellana paraval	20	66.67	2	20
3	Salladaikan	1	3.33	7	70
	Total	30	100	10	100



## OBSERVATION

### Patients:

Among 30 cases, 66.67% of cases had Mellanaparaval (sluggish spreading), 3.33% of the cases had salladaikkan, and 29.97% of cases had Muthu (Pearl beaded).

## INFERENCE

Majority of cases had slowly spread nature.



## **NEIKKURI (OIL ON URINE SIGN)**



**OP.NO: C83901**

**FINDINGS: SHAPE - ROUND**

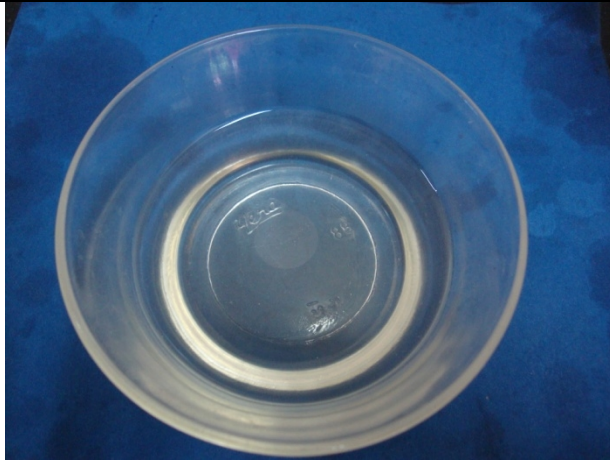
**SPREADING NATURE - MELLENA PARAVAL  
(SLOWLY SPREAD)**



**OP.NO: C91376**

**FINDINGS : SHAPE: IRREGULAR**

**SPREADING NATURE : VEGAMAI PARAVAL  
(FASTLY SPREAD)**



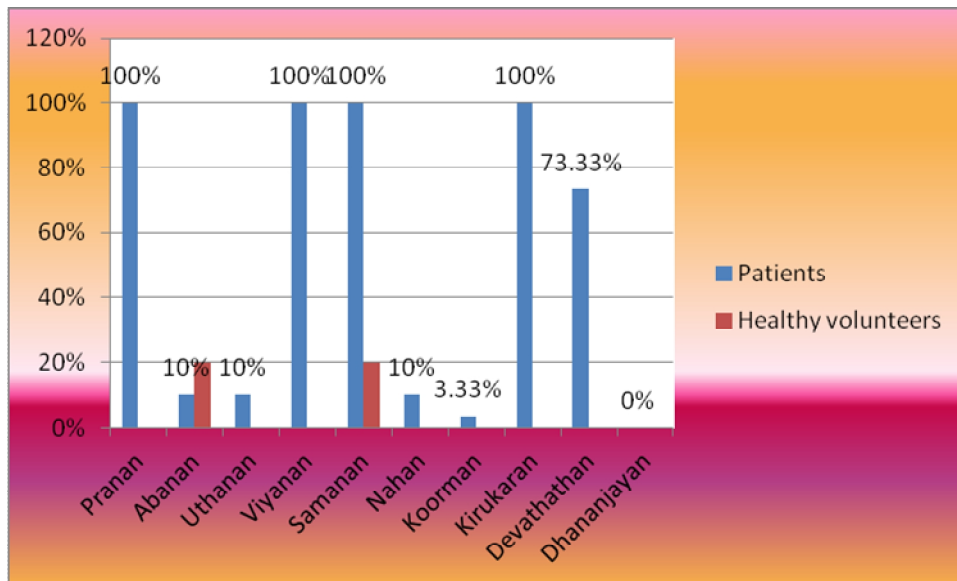
**OP.NO: C76982**

**FINDINGS: SHAPE : CIRCLE**

**SPREADING NATURE: MELLENA PARAVAL  
(SLOWLY SPREAD)**

#### . 9.21. DERANGED VALI

S.NO	VATHAM	PATIENTS		HEALTHY VOLUNTEERS	
		NO	%	NO	%
1	Pranan	30	100	0	0
2	Abanan	3	10	2	20
3	Uthanan	3	10	0	0
4	Viyanan	30	100	0	0
5	Samanan	30	100	2	20
6	Nahan	3	10	0	0
7	Koorman	10	3.33	0	0
8	Kirukaran	30	100	0	0
9	Devathathan	22	73.33	0	0
10	Dhananjayan	0	0	0	0



## OBSERVATION

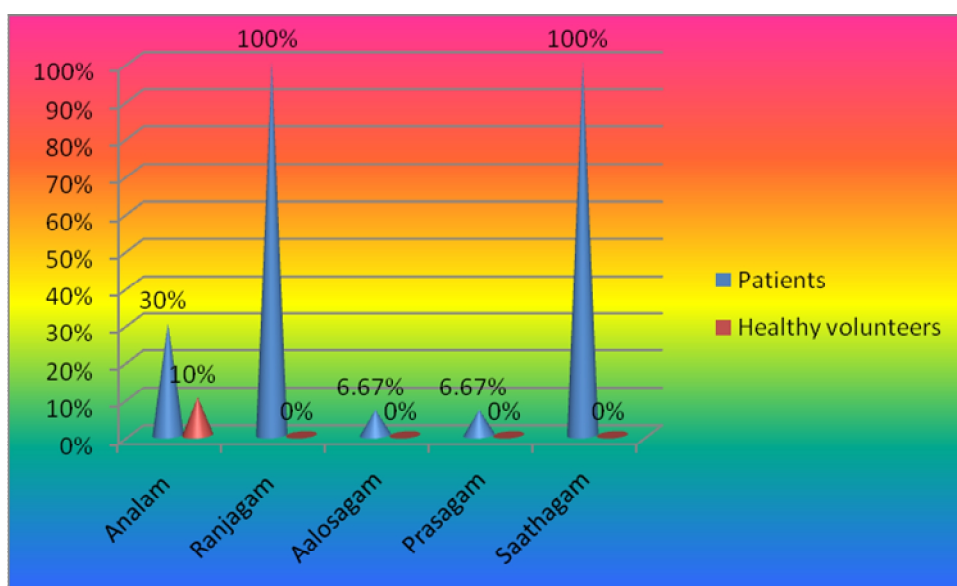
Among 30 cases, 100% cases had deranged Pranan, Viyanan, Samanan and kirukaran, 10% cases had deranged Uthanan, 10% cases had deranged Abanan, Uthanan and Nahan, 73.33% of cases had deranged Devathathan, and 3.33% of cases had deranged Koorman.

## INFERENCE

All the patients inducted in the study had Pranan, viyanan, Uthanan, Samanan Kirukaran and devathathan components of Vatha humour affected.

## 9.22. DERANGED AZHAL

S. NO	PITHAM	PATIENTS		HEALTHY VOLUNTEERS	
		NO	%	NO	%
1	Analam	30	100	1	10
2	Ranjagam	30	100	0	0
3	Aalosagam	2	6.67	0	0
4	Prasagam	2	6.67	0	0
5	Saathagam	30	100	0	0



## OBSERVATION

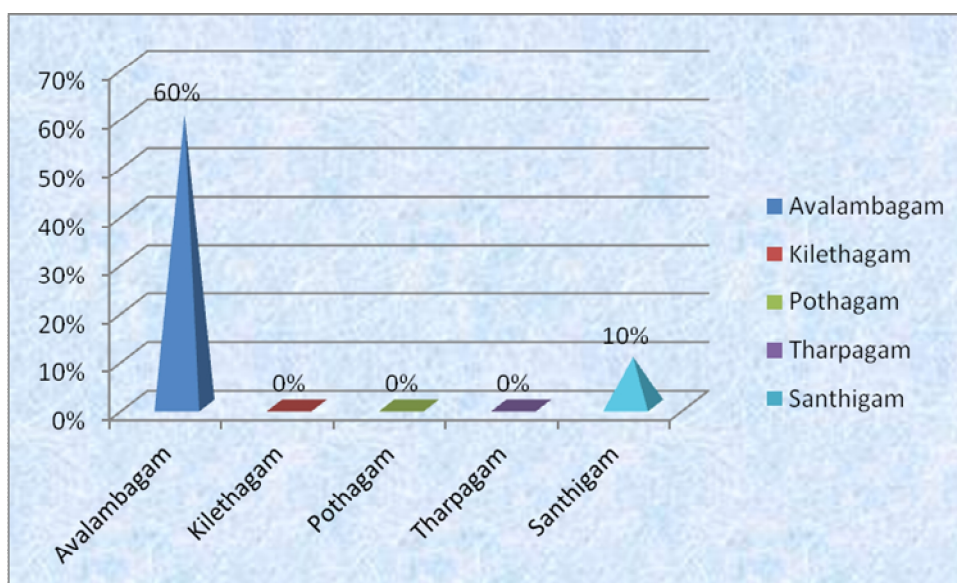
Out of 30 cases, 100% had deranged Analam, Ranjanam and Saathagam. 6.67% of cases had deranged Aalosagam, 6.67% of cases had deranged Prasagam.

## INFERENCE

The components of Pitham connected with digestion, activeness, haemopoietic activity are affected. The daily routines are greatly affected in seya kamaalai cases due to deranged Pitha humour ,vatha and kaba humour

### 9.23. DERANGED IYYAM

KAPHAM	PATIENTS		HEALTHY VOLUNTEERS	
	NO	%	NO	%
Avalambagam	18	60	0	0
Kilethagam	0	0	0	0
Pothagam	0	0	0	0
Tharpagam	0	0	0	0
Santhigam	3	10	0	0



## **OBSERVATION**

### **Patients:**

Out of 30 cases, 60% of the cases had deranged Avalambagam. 10% of the cases had deranged santhigam.

## **INFERENCE**

Avalambagam controls heart, lungs and supports other forms of kabam. In seya kamaalai, dyspnoea is present when it is affected.

**1. TABLE SHOWING LABORATORY INVESTIGATIONS OF SEYA KAMAALAI PATIENTS**

- S. No	OP/IP No	LA B NO	Ag e/ Se x	BLOOD																							
				TC Cells/ cu.m m	DC in %			ESR in mm		RB C	Hb G ms %	PC V	MCV	MCH	MCH C	B.T	C.T	B.SUGAR mgs/dl		SGO T & GPT	UR EA	CRE ATIN INE	LIPID PROFILE				
					P	L	E	½ hr	1 hr									F	PP				T.C HO	H DL	LD L	VL DL	TG L
1	C94635	4227	46/ f	4000	44	49	7	4	26	3.8	6.4	23.7	61.4	16.6	27.0	2MIN 15 SEC	4MIN 30 SEC	93	111	10/11	16	0.5	171	35	81	11	57
2	C8501	3100	42/ f	6900	64	33	03	8	18	4.0	7.5	25.6	64.0	18.8	29.3	1MIN 4 SEC	4MIN	104	130	18/19	17	0.6	181	40	110	30	50
3	C6183	5694	35/ f	7500	61	33	06	12	24	4.2	8.9	32.4	71.2	23.5	33.0	2MIN	4MIN 30 SEC	107	120	10/13	12	0.5	170	33	86	40	199
4	B16709	6594	48/ f	5838	54	39	5	4	10	4.0	9.2	21.7	65.1	19.6	30.5	3MIN	4MIN	86	116	17/18	15	0.4	168	30	126	30	70
5	C86943	6533	51/ f	6200	42	52	5	4	10	3.8	9.1		71.4	21.5	30.1	2MIN 5 SEC	4MIN 30 SEC	93	113	20/21	15	0.5	138	29	80	30	72
6	C6286	7462	29/ f	7100	42	46	12	6	12	4.2	8.6	26.8	72.4	21.6	29.9	1MIN 15 SEC	4MIN	94	107	13/14	16	0.5	158	30	110	20	70
7	D005910	126	29/ f	7700	52	38	10	6	12	4.5	9.9	33.6	83.8	27.7	33.0	2MIN	4MIN 30 SEC	114	120	11/14	15	0.5	149	30	126	30	70
8	B16709	4496	48/ F	4700	55	40	5	4	10	3.6	9.2	21.7	65.1	19.6	30.5	1MIN 20 SEC	4MIN	86	116	21/18	15	0.4	168	30	126	30	70
9	C6186	4485	35/ F	7500	61	33	06	12	24	3.0	8.9	32.4	71.2	23.5	33.0	2MIN 30 SEC	4MIN 30 SEC	107	120	10/12	14	0.5	170	33	86	40	199
10	C8501	5838	42/ F	6900	64	33	03	8	18	4.0	7.5	25.6	64.0	18.8	29.3	3MIN 15 SEC	4MIN	104	130	18/19	17	0.6	181	40	110	30	50

**2. TABLE SHOWING LABORATORY INVESTIGATIONS OF SEYA KAMAALAI PATIENTS**

S. N o	OP/ IP No	LAB NO	A G E/ SE X	BLOOD									URINE				MOTION		
													AL B	SUG AR ( R )	DEPOSITS		OVA	CY ST	OCCULT BLOOD
				PUS CEL LS	EPI CELL S														
						SMEAR STUDY			BILURUBIN			T .P			A LB	G L O			
RBC	WBC	PLATELETS	T. B	D. B	IN. B														
1	C94 635	4227	46/ f	hypochromic,micr ocytic	normal morphology	adequate and evenly distributed	0.5	0.2	0.3	6. 8	4.7	2.1	NIL	NIL	1-2	2-3	NIL	NIL	ABSENT
2	C85 01	3100	42/ f	hypochromic,micr ocytic	normal morphology	adequate and evenly distributed	0.6	0.3	0.3	5. 8	3.2	1.8	NIL	NIL	2-3	2-3	NIL	NIL	NIL
3	C61 83	5694	35/ f	hypochromic,micr ocytic	normal morphology	adequate and evenly distributed	0.5	0.2	0.3	5. 9	3.7	2.2	NIL	NIL	2-3	1-2	NIL	NIL	ABSENT
4	B16 709	5838	48/ f	hypochromic,micr ocytic	normal morphology	adequate and evenly distributed	0.6	0.2	0.4	6. 8	3.5	3.3	NIL	NIL	2-3	2-3	-	-	-
5	C86 943	6533	51/ f	hypochromic,micr ocytic	normal morphology	adequate and evenly distributed	0.8	0.3	0.5	6. 7	3.2	3.5	TR AC E	NIL	2-3	2-3	NIL	NIL	NIL
6	C62 86	7462	29/ f	hypochromic,micr ocytic	normal morphology	adequate and evenly distributed	0.6	0.3	0.3	5. 9	3.7	2.2	NIL	NIL	2-3	1-2	NIL	NIL	NIL
7	D00 591 0	126	29/ f	hypochromic,micr ocytic	normal morphology	adequate and evenly distributed	0.5	0.2	0.3	6. 9	3.7	3.2	NIL	NIL	2-3	1-2	-	-	-
8	B16 709	4496	48/ F	hypochromic,micr ocytic	normal morphology	adequate and evenly distributed	0.4	0.2	0.2	6. 4	3.4	3.0	NIL	NIL	2-3	1-2	NIL	NIL	NIL
9	C61 86	4485	44 85	hypochromic,micr ocytic	normal morphology	adequate and evenly distributed	0.6	0.2	0.4	6. 8	3.6	3.2	NIL	NIL	4-5	5-6	NIL	NIL	NIL
1 0	C85 01	5838	58 38	hypochromic,micr ocytic	normal morphology	adequate and evenly distributed	0.6	0.3	0.2	7. 1	4.8	2.2	NIL	NIL	2-3	6-7	NIL	NIL	NIL



### 3. TABLE SHOWING LABORATORY INVESTIGATIONS OF SEYA KAMAALAI PATIENTS

S. No	OP/IP No	L A B N O	Age/ Sex	BLOOD																							
				TC Cells/cu.mm	DC in %			ESR in mm		RBC	Hb gms%	PC V	MC V	MC H	MC HC	B.T	C.T	B.SUGAR mgs/dl		SGOT & GPT	UR EA	CREATININE	LIPID PROFILE				
					P	L	E	½ hr	1 hr									F	PP				T.C HO	H DL	LDL	V LDL	TG L
11	C91629	6618	40/f	5600	67	27	6	4	8	4.5	10	33.8	78.2	22.7	31.4	2MIN	4MIN 30 SEC	93	105	26/27	15	0.4	215	40	160	15	135
12	C76982	5727	19/f	10800	55	40	5	4	8	4.4	8.3	28.0	65.1	18.6	28.5	3MIN	3MIN	92	127	15/16	17	0.5	143	30	101	21	106
13	C81264	6164	39/f	7200	53	42	05	2	6	3.9	6.3	22.7	58.2	16.2	27.8	2MIN 20 SEC	4MIN 30 SEC	96	118	31/33	16	0.5	145	32	107	12	61
14	D005072	6646	48/F	10200	72	23	05	32	62	4.3	8.5	32.2	79.5	25.7	32.3	1MIN 30 SEC	4MIN	99	124	19/24	14	0.5	194	29	136	17	84
15	C94945	9058	40/F	4400	34	65	01	20	46	3.9	6.0	21.9	55.2	15.1	27.4	3MIN 15 SEC	4MIN 15 SEC	88	106	24/26	26	0.7	172	31	98	18	90
16	C92026	7411	36/F	9700	75	20	5	4	12	4.5	8.8	28.7	60.4	17.9	29.0	2MIN	4MIN	96	109	19/18	18	0.5	148	30	116	12	110
17	C86791	6690	33/M	7600	56	39	5	4	10	3.9	9.0	34.7	87.6	31	35.4	3MIN 15 SEC	4MIN 5 SEC	111	130	14/15	15	0.5	165	30	140	41	207
18	D9989	4306	45/F	8400	70	25	05	2	6	3.8	10.0	32.8	86.3	29.7	34.5	1MIN 15 SEC	4MIN	104	130	23/25	17	0.6	196	35	86	25	127
19	C91707	6890	24/F	5100	50	45	05	8	24	4.7	7.3	27.3	57.4	15.3	26.7	1MIN 20 SEC	4MIN	97	101	14/15	14	0.5	160	22	50		50
20	C49643	2737	44/F	5300	62	34	4	6	12	3.9	9.6	31.2	78.4	24.1	30.8	2MIN 15 SEC	4MIN 15 SEC	90	106	25/26	21	0.6	148	30	103	15	77

**4. TABLE SHOWING LABORATORY INVESTIGATIONS OF SEYA KAMAALAI PATIENTS**

S. No	OP/IP No	LAB NO	AGE/SEX	BLOOD									URINE				MOTION		
													ALB	SUGAR (R)	DEPOSITS		OVA	CYST	OCCULT BLOOD
				PUS CELLS	EPICELLs														
						SMEAR STUDY			BILURUBIN			T.P			ALB	GL O			
RBC	WBC	PLATELETS	T.B	D.B	IN. B														
11	C91629	6618	40/f	hypochromic,microcytic	normal morphology	adequate and evenly distributed	0.3	0.1	0.2	7.5	4.5	3	NIL	NIL	1-2	2-3	NIL	NIL	NIL
12	C76982	5727	19/f	hypochromic,microcytic	normal morphology	adequate and evenly distributed	0.5	0.2	0.4	7.5	5.1	2.4	NIL	NIL	2-3	2-3	NIL	NIL	NIL
13	C81264	6164	39/f	hypochromic,microcytic	normal morphology	adequate and evenly distributed	0.3	0.1	0.2	6.5	4.5	2.0	NIL	NIL	2-3	1-2	NIL	NIL	NIL
14	D005072	6646	48/F	hypochromic,microcytic	normal morphology	adequate and evenly distributed	0.5	0.2	0.3	6.8	3.6	3.2	NIL	NIL	2-3	2-3	NIL	NIL	NIL
15	C94945	9058	40/F	hypochromic,microcytic	normal morphology	adequate and evenly distributed	0.6	0.3	0.2	7.1	4.7	2.3	TRACE	NIL	2-3	2-3	NIL	NIL	NIL
16	C92026	7411	36/F	hypochromic,microcytic few vaculated rbc seen	normal morphology	adequate and evenly distributed	0.3	0.2	0.1	7.0	4.7	2.3	NIL	NIL	2-3	1-2	-	-	-
17	C86791	6690	33/M	hypochromic,microcytic	normal morphology	adequate and evenly distributed	0.9	0.3	0.6	6.8	3.2	3.6	NIL	NIL	2-3	1-2	NIL	NIL	NIL
18	D9989	4306	45/F	hypochromic,microcytic	normal morphology	adequate and evenly distributed	0.5	0.2	0.3	5.5	3.1	2.4	NIL	NIL	2-3	1-2	NIL	NIL	NIL
19	C91707	6890	24/F	hypochromic,microcytic	normal morphology	adequate and evenly distributed	0.6	0.2	0.4	6.7	3.1	3.6	NIL	NIL	4-5	5-6	NIL	NIL	NIL
20	C49643	2737	44/F	hypochromic,microcytic few vaculated rbc seen	normal morphology	adequate and evenly distributed	0.7	0.2	0.2	6.5	4.2	2.3	NIL	NIL	2-3	6-7	-	-	-

**5. TABLE SHOWING LABORATORY INVESTIGATIONS OF SEYA KAMAALAI PATIENTS**

S. No	/IP No	L A B N O	Ag e/ Se x	BLOOD																							
				TC Cell s/ cu. mm	DC in %			ESR in mm		R B C	Hb gms %	PC V	MC V	MC H	MC HC	B.T	C.T	B.SUGA R mgs/dl		SGO T & SGP T	UR EA	CR EA TI NI NE	LIPID PROFILE				
					P	L	E	½ hr	1 hr									F	PP				T.C HO	HD L	LD L	VL DL	TG L
21	C95755	7939	30/F	5500	62	33	5	7.6	28	3.8	8.0	25.1	58.4	17.7	30.3	2MIN 15 SEC	4MIN 15 SEC	93	113	21/22	20	0.5	223	40	123	27	139
22	C72582	7088	32/F	5800	63	33	04	10	12	3.7	10.0	31.8	83.9	28.8	34.3	1MIN 4 SEC	3 MIN	108	130	19/20	14	0.4	133	32	108	16	82
23	C80773	8700	40/F	8700	67	27	06	9.4	4	4.6	9.4	39.1	84.4	29.4	34.8	2MIN 15 SEC	2 MIN 30 SEC	97	110	13/14	20	0.6	159	32	90	47	238
24	C91376	6890	37/F	6500	50	40	10	2	4	4.6	8.3	28.5	61.0	17.8	29.1	1MIN 4 SEC	3MIN	94	104	10/11	17	0.5	128	31	56	10	151
25	C83901	3884	25/F	6300	48	48	04	12	14	4.6	8.4	28.8	61.4	17.9	29.2	1MIN 15 SEC	2MIN 30 SEC	99	120	17/18	18	0.5	96	28	64	12	60
26	C92702	6838	50/F	4400	40	52	07	6	12	4.1	10.4	31.8	76.1	24.9	32.7	2MIN 15 SEC	4MIN 10 SEC	100	110	21/22	17	0.5	117	30	70	14	74
27	4379	6800	50/f	5700	45	51	04	4	12	3.2	8.6	28.1	66.2	16.8	29.3	2MIN 15 SEC	3 MIN	71	91	11/12	34	0.9	162	40	82	23	113
28	C78468	7076	45/f	7600	64	30	06	32	54	3.3	7.2	24.0	72.1	21.6	30.0	2MIN 15 SEC	2 MIN 30 SEC	94	117	12/13	20	0.6	176	36	46	21	106
29	C45322	7436	40/f	7600	70	27	03	30	62	3.2	9.6	39.0	77.9	24.81	31.8	2MIN 15 SEC	4MIN 10 SEC	84	105	22/24	20	0.9	206	44	134	28	140
30	C83351	4210	46/f	11300	66	30	04	2	4	4.2	9.0	38.0	68.1	21.0	31.0	2MIN 15 SEC	3MIN 20 SEC	111	132	19/20	14	0.5	129	31	68	21	107

**6. TABLE SHOWING LABORATORY INVESTIGATIONS OF SEYA KAMAALAI PATIENTS**

S. No	OP/IP No	LAB NO	A G E/ SE X	BLOOD									URINE				MOTION		
													AL B	SUG AR ( R )	DEPOSITS		OV A	CY ST	OCC ULT BLO OD
				PUS CEL LS	EPI CEL LS														
						SMEAR STUDY			BILURUBIN			T. P			A L B	G L O			
RBC	WBC	PLATELETS	T. B	D. B	IN. B														
21	C95755	7939	30/ F	hypochromic, microcytic	normal morphology	adequate and evenly distributed	0.4	0.2	0.2	7.0	4.0	3.0	NIL	NIL	1-2	2-3	NIL	NIL	NIL
22	C72582	7088	32/ F	hypochromic, microcytic	normal morphology	adequate and evenly distributed	0.4	0.2	0.2	5.6	3.1	2.5	NIL	NIL	2-3	2-3	NIL	NIL	NIL
23	C80773	8700	40/ F	hypochromic, microcytic	normal morphology	adequate and evenly distributed	0.4	0.2	0.2	7.4	4.2	3.2	NIL	NIL	2-3	1-2	NIL	NIL	NIL
24	C91376	6890	37/ F	hypochromic, microcytic few vaculated rbc seen	normal morphology	adequate and evenly distributed	0.5	0.2	0.3	7.6	4.3	3.3	NIL	NIL	2-3	2-3	-	-	-
25	C83901	3884	25/ F	hypochromic, microcytic few vaculated rbc seen	normal morphology	adequate and evenly distributed	0.5	0.3	0.2	7.0	4.9	2.1	TR AC E	NIL	2-3	2-3	-	-	-
26	C92702	6838	50/ F	hypochromic, microcytic	normal morphology	adequate and evenly distributed	0.5	0.2	0.3	6.9	4.1	2.8	NIL	NIL	2-3	1-2	NIL	NIL	NIL
27	C43790	27	50/ f	hypochromic, microcytic	normal morphology	adequate and evenly distributed	0.6	0.4	0.2	7.9	4.1	3.8	NIL	NIL	2-3	1-2	NIL	NIL	NIL
28	C78468	7076	45/ f	hypochromic, microcytic	normal morphology	adequate and evenly distributed	0.5	0.3	0.2	7.0	4.1	2.9	NIL	NIL	2-3	1-2	NIL	NIL	NIL
29	C45322	7436	40/ f	hypochromic, microcytic	normal morphology	adequate and evenly distributed	0.5	0.2	0.3	6.8	4.0	2.8	NIL	NIL	4-5	5-6	NIL	NIL	NIL
30	C83351	4210	46/ f	hypochromic, microcytic	normal morphology	adequate and evenly distributed	0.5	0.2	0.3	6.5	3.7	2.8	NIL	NIL	2-3	6-7	NIL	NIL	NIL

**7. TABLE SHOWING LABORATORY INVESTIGATIONS-HEALTHY VOLUNTEERS**

S. No	OP/IP No	LAB NO	Age/ Sex	BLOOD																							
				TC Cells/cu.m m	DC in %			ESR in mm		RBC	Hb Gms %	PC V %	MC V fl	MCH pg	MCH C g/dl	B.T	C.T	B.SUGAR mgs/dl		SGOT & GPT	UREA	CREATININE	LIPID PROFILE				
					P	L	E	½ hr	1 hr									F	PP				T.C HO	H DL	LD L	VL DL	TGL
1	C72223	1939	37/M	5800	42	53	5	2	6	4	14	33.8	87.8	30.4	34.6	2min	5 min	80	-	22&27	19	0.8	170	36	87	39	198
2	D15789	1933	27/F	7600	62	36	2	12	26	4.5	12.6	30.6	77.9	25.7	33.0	5 min	4 min 10 sec	80	-	10&12	15	0.5	161	35	82	21	107
3	D15797	1955	24/F	9800	65	30	5	2	6	4	13	31.7	89.0	31.2	35.0	2 min	4 min	76	-	16&18	17	0.6	120	30	70	12	63
4	D13393	1958	26/F	10000	64	33	3	2	10	4.5	11.2	29.1	74.2	25.3	34.0	2 min	4min 30sec	81	-	20&22	14	0.4	120	30	70	12	62
5	C33345	4415	38/M	7,700	42	53	5	6	12	5	11.5	24.0	63.0	20.1	30.3	2 min	4min 30 sec	89	110	26&23	26	0.7	223	30	141	52	259
6	C33793	4544	37/M	3,300	46	50	4	2	4	3.6	8	32.5	75.6	21.4	28.3	2min 10 sec	4 min	72	115	27&23	30	0.8	208	42	150	16	78
7	C33782	4538	32/M	7,700	57	41	2	2	4	4	13	33.0	81.3	27.3	33.6	2min	3 min	71	81	24&20	19	0.6	176	40	110	26	127

8	C33366	44 28	50/ M	6,200	44	46	10	6	12	4.5	10.2	24. 3	68. 8	19.8	28.8	1min	3min	79	120	28&23	2 1	0.6	262	30	206	17	81
9	C33524	44 81	26/ M	6,300	58	40	2	4	8	4	11.8	30. 3	90. 4	29.0	33.0	3min	4min	72	81	18&15	2 7	0.7	240	39	189	12	60
10	C33790	45 46	25/ M	8,000	62	36	2	2	4	5	12.3	30. 9	80. 3	24.9	31.1	2min 30 sec	3 min 30 sec	73	79	20&15	1 5	0.6	179	33	129	17	83

## 8. TABLE SHOWING LABORATORY INVESTIGATIONS-HEALTHY VOLUNTEERS

S. No	OP/IP No	LAB NO	AGE/SEX	BLOOD									URINE				MOTION		
				SMEAR STUDY						BILURUBIN			ALB	SUGAR (R)	DEPOSITS		OVA	CYST	OCCULT BLOOD
															PUS CELLS	EPI CELLS			
				RBC	WBC	PLATELETS	T.B	D.B	IN.B	T.P	ALB	GLO							
1	C72223	1939	37/M	normocytic normochromic anaemia	normal morphology	platelets are adequate and evenly distributed	0.3	0.1	0.2	7.5	4.5	3	NIL	NIL	NIL	1-2	2-4	NIL	NIL
2	D15789	1933	27/F	normocytic normochromic anaemia	normal morphology	platelets are adequate and evenly distributed	0.5	0.2	0.4	7.5	5.1	2.4	NIL	NIL	NIL	1-2	1-2	NIL	NIL
3	D15797	1955	24/F	normocytic normochromic anaemia	normal morphology	platelets are adequate and evenly distributed	0.3	0.1	0.2	6.5	4.5	2.0	NIL	NIL	NIL	2-4	4-5	NIL	NIL
4	D13393	1958	26/F	normocytic normochromic anaemia	normal morphology	platelets are adequate and evenly distributed	0.5	0.2	0.3	6.8	3.6	3.2	NIL	NIL	NIL	1-2	2-4	NIL	NIL
5	C33345	4415	38/M	normocytic normochromic anaemia	normal morphology	platelets are adequate and evenly distributed	0.6	0.3	0.2	7.1	4.7	2.3	NIL	NIL	NIL	1-2	1-2	NIL	NIL
6	C33793	4544	37/M	normocytic normochromic anaemia	normal morphology	platelets are adequate and evenly distributed	0.3	0.2	0.1	7.0	4.7	2.3	NIL	NIL	NIL	1-2	2-4	NIL	NIL
7	C33782	4538	32/M	normocytic normochromic anaemia	normal morphology	platelets are adequate and evenly distributed	0.9	0.3	0.6	6.8	3.2	3.6	NIL	NIL	NIL	2-4	2-4	NIL	NIL
8	C33366	4428	50/M	normocytic normochromic anaemia	normal morphology	platelets are adequate and evenly distributed	0.5	0.2	0.3	5.5	3.1	2.4	NIL	NIL	NIL	1-2	2-4	NIL	NIL
9	C33524	4481	26/M	normocytic normochromic anaemia	normal morphology	platelets are adequate and evenly distributed	0.6	0.2	0.4	6.7	3.1	3.6	NIL	NIL	NIL	1-2	1-2	NIL	NIL
10	C33790	4546	25/M	normocytic normochromic anaemia	normal morphology	platelets are adequate and evenly distributed	0.7	0.2	0.2	6.5	4.2	2.3	NIL	NIL	NIL	2-4	2-4	NIL	NIL





At the end of the study on Seya kamaalai, the author discusses on significant facts about the disease with relevant justifications from Siddha and Modern literatures based on observations and results.

The reterospective review of the disease Seya kamaalai begins from the correlation with the signs and symptoms of the disease.

Based on the clinical features given by Yugimuni Vaithiya Kaviyam, patients were recruited and were subjected to thorough history taking, clinical examination and laboratory investigations.

In this , 40% of cases had 6.0-8.5g/dL haemoglobin level, 40% of cases had 8.6-9.5 g/dL haemoglobin level.

In the study females were more affected than males. Generally women are at high risk of iron deficiency as they have a regular blood loss due to menstrual disorders. Pregnant and lactating women are usually affected by iron deficiency anemia due to increased iron requirements.

Though Iron from meat, poultry, and fish (i.e., heme iron) is absorbed two to three times more efficiently than iron from plants, most of the subjects in this study were non-vegetarians probably because non- vegetarians are more prevalent in the general population.

As per the data collected from 30 samples, Home makers were affected more (90%) probably due to the fact that most of the home makers are women at reproductive age who have improper feeding habits and gets regular blood loss due to menstruation.

Next to homemakers, Seya kamaalai appear to be prevalent among school students (6.66%) as they follow unhealthy feeding habits such as skipping breakfast, eating less vegetables and fruits and more junk foods.

Majority of cases had their diseases started in Kaarkalam & muthuvenirkaalam. The above data supports the fact that inadequate diet without proper nutrition was the major cause for iron deficiency anemia globally. Increased intake of hot, salt, astringent etc affecting iron absorption from gut ranks second in causing IDA. Tobacco chewing reduces utilization of iron and causes lot of vascular complications leading to IDA. Regular blood loss causing significant reduction in hemoglobin content also result in IDA. Pallor of eyes, dyspnoea on exertion are the classic symptom of anemia and expressed in all cases.

Drowsiness and palpitation occur only in very low hemoglobin levels, hence it is manifested in around 70% of individuals.

Chronic iron deficiency results in decline in body growth and general health. Hence most of the cases have a lean body nature and 26.6% have normal body nature and very few have robust nature.

As per the report, most of the cases were from Marutham region and Neithal region. However, as this is a single centered study done only in National Institute of Siddha, prevalence in various regions cannot be inferred properly.

In the study majority of the patients fell in Pitha kaalam. This supports the Siddha literature, which states that Seya kamaalai is due to vitiated pitha humour.

Majority of cases had their diseases in kaarkaalam and muthuvenir kaalam. Generally our body's immune levels are low during this time (aathaana kaalam) as per siddha literatures. So there is high chance of getting various infections, which may underlie the cause for iron deficiency.

Majority of the cases suffering from this disease had duration of 3 months. Usually duration of illness in anemia depends on its cause, as body restores its normal hb level once the root cause is rectified. If the cause for IDA is due to inadequate diet it can be restored easily by proper diet. But if it is due to any chronic disorder, it may take a long time.

In Manikkadai nool study, a sizable percentage of cases had Manikkadai measurements of 8 fbs.. In the Agasthiyar soodamani kayiru soothiram a treatise written by Sage Agasthiyar, the wrist circumetric sign for vellupu and pitha miguthi has been given as 91/2 and 71/4.

From the pulse study of Seya kamaalai patients, 43.33% of cases had the Naadinadai of Vathapitham, 3.33% cases had Kabapitham 53.33% cases had Naadinadai of Pithavatham. Whereas in healthy volunteers Naadi was observed to be in physiological state in most of them with respect to body nature, sex and age.

In the study majority of cases had pallor tongue, no abnormal taste lingering in tongue and normal salivation. Pallor tongue is a sign of anaemia.

In Healthy volunteers, no specific inference could be made out in this study from the examination of tongue (Naa).

As most of the Indians are wheatish in colour, 60% of patients found to be wheatish. No specific inference could be made out in this study from the examination of niram. . Among 30 cases, 3.33% of cases had thoduvali (Tenderness), 96.67% of cases were without thoduvali.

In Healthy volunteers, no specific inference could be made out in this study from the examination of niram, mozhi and meikuri.

From eye examination, majority of cases in the study were seen with pallor of eyes . This feature which is also mentioned in modern texts under iron deficiency anaemia.

In the study majority of cases had yellow (normal) coloured stools. No specific inference could be made from malam (stool) examination.

Majority of cases had slowly spreading nature neikkuri.

All the patients inducted in the study had Pranan, viyanan, Udhanan, Samanan Kirukaran and devathathan components of Vatha humour affected.

From the study on five types of Pitham, the components of Pitham connected with digestion, activeness, haemopoietic activity are found to be affected. The daily routines are greatly affected.

Of all the 30 cases, all the cases had deranged Avalambagam, Kilethagam and Santhigam.

## 12.CONCLUSION

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The symptoms and signs mentioned in Sage Yugimuni literature are in close conformity with that of Iron deficiency anaemia mentioned in modern medical literature.

Study on Manikkadai nool threw up a narrow identifiable range (8fbs) for Seya kamaalai. So with all the symptomatology and the observed results a clinician can diagnose this study clinical entity as Seya kamaalai with confidence.

From the study on Naadi (Pulse), it was found that majority of patients were with Pithavatha Naadi. So presence of Pithavatha naadi in Seya kamaalai patients should be taken as a sign of increased Pitha humour which might lead on to seya kamaalai and drugs for balancing Pitha naadi should be selected.

From the study on Neikkuri (Examination of Urine), though it was found that many (93.33 %) cases of seya kamaalai had slowly spreading nature, it cannot be taken as one of the significant diagnostic tool for diagnosing this disease. because this pattern has also been reported in other diseases in our institute and considered as a non specific pattern. This is because most of them were reproductive age group.

In the study majority of cases had pallor tongue, no abnormal taste in tongue and normal vainer oral. Majority of cases in the study were seen with pallor of eyes .

With the study on Udalthathukkal, it was found that all the cases had all the Udal Thathukkal affected .So drugs that strengthen the Udal thathukkal in general should be prescribed.

The patients with symptoms of Seya kamaalai mentioned by SageYugi conformed to majority of symptoms mentioned in the modern literature of iron deficiency anaemia. Thus this study has validated the symptomatology elucidated by Sage Yugi and matched it with that of a disease of iron deficiency anaemia.

All the patients inducted in the study had Pranan, Viyanan, Udhanan, Samanan, Kirukaran and Devathathan components of Vatha humour affected. From the study on five types of Pitham, the components of Pitham connected with digestion, activeness, haemopoietic activity are found to be affected. The daily routines are greatly affected.

From the study it is evident that, with Naadi, Manikkadai nool, Neerkkuri, Naa and Udal thathukkal examination, seya kamaalai can be diagnosed easily. The author concludes that these Siddha diagnostic parameters can be successfully implemented by a physician at the clinical level in the diagnosis of Seya kamaalai.

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<b>Form –I</b>	Screening and selection Proforma
<b>Form –IA</b>	History Proforma on enrollment
<b>Form II</b>	Clinical Assessment on enrollment
<b>Form –III</b>	Laboratory investigations on enrollment, during the study
<b>Form –IV</b>	Consent form (Vernacular and English versions)
<b>Form -IV- A</b>	Patient Information Sheet (Vernacular and English versions)



**NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47**

**DEPARTMENT OF NOI NAADAL**

**A STUDY ON DIAGNOSTIC METHODOLOGY AND SYMPTOMATOLOGY OF  
“SEYA KAMAALAI”**

**FORM I**

**SCREENING AND SELECTION PROFORMA**

1. O.P.No \_\_\_\_\_ 2. I.P No \_\_\_\_\_ 3. Bed No: \_\_\_\_\_ 4. S.No: \_\_\_\_\_

5. Name: \_\_\_\_\_ 6. Age (years):  7. Gender: M ☐ F ☐

8. Occupation: \_\_\_\_\_ 9. Income: \_\_\_\_\_

10. Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. Contact No : \_\_\_\_\_

12. E-mail : \_\_\_\_\_

## INCLUSION CRITERIA

	YES	NO
Age : 18 to 50	<input type="checkbox"/>	<input type="checkbox"/>
• Pallor of eyes	<input type="checkbox"/>	<input type="checkbox"/>
• Breathlessness on exertion	<input type="checkbox"/>	<input type="checkbox"/>
• Palpitation	<input type="checkbox"/>	<input type="checkbox"/>
• Loss of appetite	<input type="checkbox"/>	<input type="checkbox"/>
• Giddiness	<input type="checkbox"/>	<input type="checkbox"/>
Facial edema	<input type="checkbox"/>	<input type="checkbox"/>
Patient willing to give blood sample as mentioned in laboratory proforma	<input type="checkbox"/>	<input type="checkbox"/>

Patients who fulfill any of the four criteria are included to the study

## EXCLUSION CRITERIA

	YES	NO
• Anemia of chronic diseases:	<input type="checkbox"/>	<input type="checkbox"/>
• Endocrine disorders	<input type="checkbox"/>	<input type="checkbox"/>
• Vulnerable group(pregnancy, lactation)	<input type="checkbox"/>	<input type="checkbox"/>
• Bleeding disorders	<input type="checkbox"/>	<input type="checkbox"/>
• Post surgery,post trauma	<input type="checkbox"/>	<input type="checkbox"/>

**Date :**

**P.G Student**

**Lecturer**

**DEPARTMENT OF NOI NAADAL**  
**NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47.**  
**A STUDY ON DIAGNOSTIC METHODOLOGY AND**  
**SYMPTOMATOLOGY OF “SEYA KAMAALAI”**

**FORM II - HISTORY PROFORMA**

1. Sl.No of the case: \_\_\_\_\_

2. Name: \_\_\_\_\_ Height: \_\_\_\_\_ cms Weight: \_\_\_\_\_  
Kg

3. Age (years): \_\_\_\_\_ DOB 

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D D M M Y E A R

4. Educational Status:

1) Illiterate ☐ 2) Literate ☐ 3) Student ☐ 4) Graduate/Postgraduate ☐

5. Nature of work:

1) Sedentary work ☐  
2) Field work with physical labour ☐  
3) Field work Executive ☐

6. Complaints and Duration:

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7. History of present illness:

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8. History of Past illness:

	1. Yes	2. No
Systemic hypertension	<input type="checkbox"/>	<input type="checkbox"/>
Ischemic heart disease	<input type="checkbox"/>	<input type="checkbox"/>
Dyslipidaemia	<input type="checkbox"/>	<input type="checkbox"/>
Jaundice	<input type="checkbox"/>	<input type="checkbox"/>
Bronchial asthma	<input type="checkbox"/>	<input type="checkbox"/>
Any drug allergy	<input type="checkbox"/>	<input type="checkbox"/>
Any GI surgeries	<input type="checkbox"/>	<input type="checkbox"/>
Any major illnesses	<input type="checkbox"/>	<input type="checkbox"/>
Chronic aspirin ingestion	<input type="checkbox"/>	<input type="checkbox"/>
Haematuria, epistaxis, haemoptysis	<input type="checkbox"/>	<input type="checkbox"/>

9. Habits:

10. Personal history:

Marital status: Married ☐ Unmarried ☐

No. of children: Male: \_\_\_\_\_ Female: \_\_\_\_\_

11. Family history:

12. Menstrual history

Age at menarche \_\_\_\_\_ years

Gravidity ☐

Parity ☐

The presence or absence of clots

Duration of the menstrual cycle

Menorrhagia present

absent

Constancy of cycle duration: 1.Regular

☐

2.Irregular

☐

13.Obstetric history

Pregnancies-number and frequency

Miscarriages

Abortion

14. GENERAL ETIOLOGY FOR SEYA KAMAALAI:

1. Increased intake of salty, astringent tasting foods

☐☐

2. inadequate diet

☐☐

3. Following Menorrhagia,hypertention,piles,  
blood vomiting,biody stools

☐☐

4. following fever,diarrhea,vomiting,arthritis,

☐☐

5. chronic intake of toxic medicines

☐☐

6. Following Trauma

☐☐

7. Suffering from worm infection,Tuberculosis,dysentry

☐☐

8. Following Liver diseases

☐☐

9. Tobacco chewing, betal nut chewing, intake of sand and camphor ☐ ☐

#### 15. CLINICAL SYMPTOMS OF SEYA KAAMALAI

	YES	NO
1. Age 18-50	<input type="checkbox"/>	<input type="checkbox"/>
2. Pallor of eyes	<input type="checkbox"/>	<input type="checkbox"/>
3. Breathlessness on exertion	<input type="checkbox"/>	<input type="checkbox"/>
4. Palpitation	<input type="checkbox"/>	<input type="checkbox"/>
5. Loss of appetite	<input type="checkbox"/>	<input type="checkbox"/>
6. Giddiness	<input type="checkbox"/>	<input type="checkbox"/>
7.. Facial edema	<input type="checkbox"/>	<input type="checkbox"/>

**Date :**

**P.G Student**

**Lecturer**

**NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47**

**DEPARTMENT OF NOI NAADAL**

**A STUDY ON DIAGNOSTIC METHODOLOGY AND  
SYMPTOMATOLOGY OF “SEYA KAMAALAI”**

**FORM II**

**CLINICAL ASSESSMENT**

1. Serial No: \_\_\_\_\_

2. Name: \_\_\_\_\_

3. Date of birth: 

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--	--

--	--	--	--

  
D D M M Y E A R

4. Age: \_\_\_\_\_ years

5. Date: \_\_\_\_\_

**GENERAL EXAMINATION:**

1. Pallor:

2. Icterus:

3. Cyanosis:

4. Lymphadenopathy:

5. Pedal edema:

6. Clubbing:

7. Jugular vein pulsation:



8. Temperature (°F):

9. Pulse rate:

10. Heart rate:

11. Respiratory rate:

12. Blood pressure:

13. Height: \_\_\_\_\_ cms.

14. Weight (kg):      BMI \_\_\_\_\_ (Weight Kg/ Height m<sup>2</sup>)

### VITAL ORGANS EXAMINATION

	1. Normal	2. Affected
1. Heart	<input type="checkbox"/>	<input type="checkbox"/> _____
2. Lungs	<input type="checkbox"/>	<input type="checkbox"/> _____
3. Brain	<input type="checkbox"/>	<input type="checkbox"/> _____
4. Liver	<input type="checkbox"/>	<input type="checkbox"/> _____
5. Kidney	<input type="checkbox"/>	<input type="checkbox"/> _____
6. Spleen	<input type="checkbox"/>	<input type="checkbox"/> _____
7. Stomach	<input type="checkbox"/>	<input type="checkbox"/> _____

## **SYSTEMIC EXAMINATION:**

1. Cardio Vascular System \_\_\_\_\_
2. Respiratory System \_\_\_\_\_
3. Gastrointestinal System \_\_\_\_\_
4. Central Nervous System \_\_\_\_\_
5. Uro genital System \_\_\_\_\_
6. Endocrine System \_\_\_\_\_
7. Musculoskeletal system \_\_\_\_\_

## **SIDDHA SYSTEM OF EXAMINATION**

### **[1] ENVAGAI THERVU [EIGHT-FOLD EXAMINATION]**

#### **I. NAADI (KAI KURI) (RADIAL PULSE READING)**

##### **(a) Naadi Nithanam (Pulse Appraisal)**

##### **1. Kalam (Pulse reading season)**

Perumpozhuthu:

- |                                    |                          |                                   |                          |
|------------------------------------|--------------------------|-----------------------------------|--------------------------|
| 1. Kaarkaalam<br>(Rainy season)    | <input type="checkbox"/> | 2. Koothirkaalam<br>(Autumn)      | <input type="checkbox"/> |
| 3. Munpanikaalam<br>(Early winter) | <input type="checkbox"/> | 4. Pinpanikaalam<br>(Late winter) | <input type="checkbox"/> |

5. Ilavenirkaalam ☐  
(Early summer)

6.Muthuvenirkaalam ☐  
(Late summer)

Sirupozhuthu:

1. . Kaalai ☐ 2.Mathiyam ☐ 3. . Maalai ☐

4. Erpaadu ☐ 5. Iravu ☐ 6 Vaikarai ☐

2. Desam (Climate of the patient's habitat):

1. Kulir ☐ 2. Veppam ☐  
(Temperate) (Hot)

3. Vayathu (Age) : 1. 1-33yrs ☐ 2. 34-66yrs ☐ 3. 67-100 ☐

4. Udal Vanmai (General body condition)

1. Iyyalbu ☐ 3. Valivu ☐ 4.Melivu ☐  
(Normal built) (Robust) (Lean)

**(b) Naadi Nadai (Pulse Play)**

1. Vanmai (Expansile Nature)

1.Vatham Vanmai ☐ Menmai ☐

2.Pitham Vanmai ☐ Menmai ☐

3.Kabam Vanmai ☐ Menmai ☐

## 2. Panbu (Habit)

- |                               |                          |                               |                          |                             |                          |
|-------------------------------|--------------------------|-------------------------------|--------------------------|-----------------------------|--------------------------|
| 1. Thannadai<br>(Playing in)  | <input type="checkbox"/> | 2. Puranadai<br>(Playing out) | <input type="checkbox"/> | 3. Illaitthal<br>(Feeble)   | <input type="checkbox"/> |
| 4. Kathithal<br>(Swelling)    | <input type="checkbox"/> | 5. Kuthithal<br>(Jumping)     | <input type="checkbox"/> | 6. Thullal<br>(Frisking)    | <input type="checkbox"/> |
| 7. Azhutthal<br>(ducking)     | <input type="checkbox"/> | 8. Padutthal<br>(Lying)       | <input type="checkbox"/> | 9. Kalatthal<br>(Blending)  | <input type="checkbox"/> |
| 10. Munnokku<br>(Advancing)   | <input type="checkbox"/> | 11. Pinnokku<br>(Flinching)   | <input type="checkbox"/> | 12. Suzhalal<br>(Revolving) | <input type="checkbox"/> |
| 13. Pakkamnokku<br>(Swerving) | <input type="checkbox"/> |                               |                          |                             |                          |

## 3. Naadi nadai

- |               |                          |                |                          |               |                          |
|---------------|--------------------------|----------------|--------------------------|---------------|--------------------------|
| 1. Vali       | <input type="checkbox"/> | 2. Azhal       | <input type="checkbox"/> | 3. Iyyam      | <input type="checkbox"/> |
| 4. Vali Azhal | <input type="checkbox"/> | 5. Azhal Vali  | <input type="checkbox"/> | 6. Iyya Vali  | <input type="checkbox"/> |
| 7. Vali Iyyam | <input type="checkbox"/> | 8. Azhal Iyyam | <input type="checkbox"/> | 9. Iyya Azhal | <input type="checkbox"/> |

Any Other Findings \_\_\_\_\_

## II.NAA (TONGUE)

1. Maa Padinthuruthal 1. ☐ Absent ☐ 2. Present

\_\_\_\_\_  
(Coatedness)

2. Niram (Colour) 1. Sivappu (Red) ☐ 2. Manjal (Yellow) ☐

3. Velluppu (Pale) ☐ 4. Karuppu (Dark) ☐

Others \_\_\_\_\_

3. Suvai 1. Pulippu ☐ 2. Kaippu ☐ 3. Inippu ☐  
(Taste sensation) (Sour) (Bitter) (Sweet)

4. Vedippu 1. Present ☐ 2. Absent ☐  
(Fissure)

5. Vai neer oorai 1. Normal ☐ 2. Increased ☐ 3. Reduced ☐  
(Salivation)

Any Other Findings \_\_\_\_\_

## III.NIRAM (COMPLEXION)

1. Karuppu ☐ 2. Manjal ☐  
(Dark-Vatham) (Yellowish-Pitham)

3. Velluppu ☐ 4. Thontham ☐  
(Fair-Kabam)

Any Other Findings \_\_\_\_\_

#### IV. MOZHI (VOICE)

1. Sama oli  
(Medium pitched-Vatham) ☐

2 Urattha oli  
(High pitched-Pitham) ☐

3.Thazhantha oli  
(Low pitched-Kabam) ☐

4. Thontham ☐

Any Other Findings \_\_\_\_\_

#### V. VIZHI (EYES)

1. Niram (Venvizhi)  
(Discolouration)

1. Karuppu  
(Dark) ☐

2. Manjal  
(Yellow) ☐

3.Sivappu  
(Red) ☐

4.Velluppu  
(White) ☐

5. No Discoloration ☐

6.Thontham ☐

2. Kanneer  
(Tears)

1.Normal ☐

2. Increased ☐

3.Reduced ☐

3. Erichchal  
(Burning sensation)

1.Present ☐

2. Absent ☐

4. Peelai seruthal  
(Mucus excrements)

1.Present ☐

2. Absent ☐

Any Other Findings \_\_\_\_\_

## VI. MEI KURI-SPARISAM (PHYSICAL SIGNS)

- |                               |  |   |   |
|-------------------------------|--|---|---|
| 1. Veppam<br>(Warmth)         | 1. Mitham <input type="checkbox"/><br>(Mild -Vatham) | 2. Migu <input type="checkbox"/><br>(Moderate-Pitham) | 3. Thatpam <input type="checkbox"/><br>( Low-Kabam) |
| 2. Viyarvai                   | 1. Normal <input type="checkbox"/>                   | 2. Increased <input type="checkbox"/>                 | 3. Reduced <input type="checkbox"/>                 |
| 3. Thodu vali<br>(Tenderness) | 1. Absent <input type="checkbox"/>                   | 2. Present <input type="checkbox"/>                   | _____   |

Any Other Findings \_\_\_\_\_

## VII. MALAM (STOOLS)

- |  |   |   |
|--|---|---|
| 1. Niram<br>(Color)                          | 1. Karuppu <input type="checkbox"/><br>(Dark-Vatham)    | 2. Manjal <input type="checkbox"/><br>(Yellowish -Pitham) |
|  | 3. Sivappu <input type="checkbox"/><br>(Reddish-Pitham) | 4. Velluppu <input type="checkbox"/><br>(Pale-Kabam)      |
| 2. Sikkal<br>(Constipation)                  | 1. Present <input type="checkbox"/>                     | 2. Absent <input type="checkbox"/>                        |
| 3. Sirutthal<br>(Poorly formed stools)       | 1. Present <input type="checkbox"/>                     | 2. Absent <input type="checkbox"/>                        |
| 4. Kalichchal<br>(Loose watery stools)       | 1. Present <input type="checkbox"/>                     | 2. Absent <input type="checkbox"/>                        |
| 5. Seetham<br>(Watery and mucoid excrements) | 1. Present <input type="checkbox"/>                     | 2. Absent <input type="checkbox"/>                        |

6. Vemmai 1. Present ☐ 2. Absent ☐  
(Warmth)

7. History of habitual constipation 1. Present ☐ 2. Absent ☐

8. Passing of a) Mucous 1. Yes ☐ 2. No ☐

b) Blood 1. Yes ☐ 2. No ☐

Any Other Findings \_\_\_\_\_

## VIII. MOOTHIRAM (URINE)

### (a) NEER KURI (PHYSICAL CHARACTERISTICS)

#### 1. Niram (colour)

Pale yellow ☐ Milky purulent ☐ orange ☐

Red ☐ Greenish ☐ dark brown ☐

Bright red ☐ Black ☐ Brown red or yellow ☐

Colourless ☐

#### 2. Manam (odour)

Ammonical : ☐

Fruity : ☐

Others : \_\_\_\_\_



### 3. Edai (Specific gravity)

Normal (1.010-1.025) : ☐

High Specific gravity (>1.025) : ☐

Low Specific gravity (<1.010) : ☐

Low and fixed Specific gravity (1.010-1.012): ☐

### 4. Alavu(volume)

Normal (1.2-1.5 lt/day) : ☐

Polyuria (>2lt/day) : ☐

Oliguria (<500ml/day) : ☐

### 5. Nurai(froth)

Froth ☐

Clear ☐

Cloudy ☐

6.Enjal (deposits) : Yes ☐ No ☐

Any Other Findings \_\_\_\_\_

**(b) NEI KURI (OIL SPREADING SIGN)**

**TIME:**

**1. Urine collection:**

**2. Oil drop:**

**3. Picture taken:** **shape**

**1minute:** ..... -----

**3minutes:** ..... -----

**5minutes:** ..... -----

**7minutes:** ..... -----

**10minutes:** ..... -----

**[2]. MANIKADAI NOOL (WRIST CIRCUMMETRIC SIGN)** : Right \_\_\_\_\_ fbs

Left \_\_\_\_\_ fbs

**[3]. THATHUVA IYALPU:**

**MANO THATHUVAM**

Sathuva Gunam ☐

Rajo Gunam ☐

Thamo Gunam ☐

#### 4.. YAKKAI (SOMATIC TYPES)

Vatha constitution	Pitha constitution	Kaba constitution
Lean and lanky built <input type="checkbox"/>	Thin covering of bones and joints <input type="checkbox"/>	Plumpy joints and limbs <input type="checkbox"/>
Hefty proximities of limbs <input type="checkbox"/>	by soft tissue	Broad forehead and chest <input type="checkbox"/>
Cracking sound of joints on walking <input type="checkbox"/>	Always found with warmth, sweating and offensive body odour <input type="checkbox"/>	Sparkling eyes with clear sight <input type="checkbox"/>
Dark and thicker eye lashes <input type="checkbox"/>	Wrinkles in the skin <input type="checkbox"/>	Lolling walk <input type="checkbox"/>
Dark and light admixed complexion <input type="checkbox"/>	Red and yellow admixed complexion <input type="checkbox"/>	Immense strength despite poor eating <input type="checkbox"/>
Split hair <input type="checkbox"/>	Easily suffusing eyes due to heat and alcohol <input type="checkbox"/>	High tolerance to hunger, thirst and fear <input type="checkbox"/>
Clear words <input type="checkbox"/>	Sparse hair with greying <input type="checkbox"/>	Exemplary character with good memory power <input type="checkbox"/>
Scant appetite for cold food items <input type="checkbox"/>	Intolerance to hunger, thirst and heat <input type="checkbox"/>	More liking for sweet taste <input type="checkbox"/>
Poor strength despite much eating <input type="checkbox"/>	Inclination towards perfumes like sandal <input type="checkbox"/>	Husky voice <input type="checkbox"/>
Loss of libido <input type="checkbox"/>	Slender eye lashes <input type="checkbox"/>	
In generosity <input type="checkbox"/>	Pimples and moles are plenty <input type="checkbox"/>	
Sleeping with eyes half closed <input type="checkbox"/>		

**RESULTANT SOMATIC TYPE:** \_\_\_\_\_

**[5]. IYMPORIGAL /IYMPULANGAL**

**(Penta sensors and its modalities)**

	<b>1. Normal</b>	<b>2. Affected</b>	
1. Mei (skin)	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Vaai (Mouth/ Tongue)	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Kan (Eyes)	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Mookku (Nose)	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Sevi (Ears)	<input type="checkbox"/>	<input type="checkbox"/>	_____

**[6]. KANMENTHIRIYANGAL /KANMAVIDAYANGAL**

**(Motor machinery and its execution)**

	<b>1. Normal</b>	<b>2. Affected</b>	
1. Kai (Hands)	<input type="checkbox"/>	<input type="checkbox"/>	_____
2.Kaal (Legs)	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Vaai (Mouth)	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Eruvai (Analepy)	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Karuvaai (Birth canal)	<input type="checkbox"/>	<input type="checkbox"/>	_____

## [7] UYIR THATHUKKAL

### A. VALI

	1. Normal	2. Affected	
1. Praanan (Heart centre)	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Abaanan (Matedial of muladhar centre)	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Samaanan (Navel centre)	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Udhaanan (Forehead centre)	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Viyaanan (Throat centre)	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Naahan (Higher intellectual function)	<input type="checkbox"/>	<input type="checkbox"/>	_____
7. Koorman (Air of yawning)	<input type="checkbox"/>	<input type="checkbox"/>	_____
8. Kirukaran (Air of salivation)	<input type="checkbox"/>	<input type="checkbox"/>	_____
9. Devathathan (Air of laziness)	<input type="checkbox"/>	<input type="checkbox"/>	_____
10. Dhananjeyan (Air that acts on death)	<input type="checkbox"/>	<input type="checkbox"/>	_____

## B. AZHAL

	1. Normal	2. Affected	
1. Anala pittham (Gastric juice)	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Prasaka pittham (Bile)	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Ranjaka pittham (Haemoglobin)	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Aalosaka pittham (Aqueous Humour)	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Saathaka pittham (Life energy)	<input type="checkbox"/>	<input type="checkbox"/>	_____

## C. IYYAM

	1. Normal	2. Affected	
1. Avalambagam (Serum)	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Kilethagam (saliva)	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Pothagam (lymph)	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Tharpagam (cerebrospinal fluid)	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Santhigam (Synovial fluid)	<input type="checkbox"/>	<input type="checkbox"/>	_____

## 8] UDAL THATHUKKAL:

### A. SAARAM:

INCREASED SAARAM (CHYLE)	DECREASED SAARAM(CHYLE)
Loss of appetite <input type="checkbox"/>	Loss of weight <input type="checkbox"/>
Excessive salivation <input type="checkbox"/>	Tiredness <input type="checkbox"/>
Loss of perseverance <input type="checkbox"/>	Dryness of the skin <input type="checkbox"/>
Excessive heaviness <input type="checkbox"/>	Diminished activity of the <input type="checkbox"/>
White musculature	sense organs
Cough, dyspnoea, excessive sleep <input type="checkbox"/>	
Weakness in all joints of the body <input type="checkbox"/>	

Normal

☐

Abnormal

☐

### B.CENNEER:

INCREASED CENNEER(BLOOD)	DECREASED CENNEER(BLOOD)
Boils in different parts of the body <input type="checkbox"/>	Anemia <input type="checkbox"/>
Anorexia <input type="checkbox"/>	Tiredness <input type="checkbox"/>
Mental disorder <input type="checkbox"/>	Neuritis <input type="checkbox"/>
Splenomegaly <input type="checkbox"/>	Lassitude <input type="checkbox"/>
Colic pain <input type="checkbox"/>	

Increased pressure	<input type="checkbox"/>	Pallor of the body	<input type="checkbox"/>
Reddish eye and skin	<input type="checkbox"/>		
Jaundice	<input type="checkbox"/>		
Haematuria	<input type="checkbox"/>		

Normal ☐ Abnormal ☐  
C.OON:

INCREASED OON (MUSLE)	DECREASED OON (MUSLE)
Cervical lymphadenitis <input type="checkbox"/>	Impairment of sense organs <input type="checkbox"/>
Vernical ulcer <input type="checkbox"/>	Joint pain <input type="checkbox"/>
Tumour in face ,abdomen, thigh, genitalia <input type="checkbox"/>	Jaw, thigh and genitalia gets shortened <input type="checkbox"/>
Hyper muscular in the cervical region <input type="checkbox"/>	

Normal ☐ Abnormal ☐



D.KOZHUPPU:

INCREASED KOZHUPPU (ADIPOSE TISSUE)	DECREASED KOZHUPPU (ADIPOSE TISSUE)
Cervical lymph adenitis <input type="checkbox"/>	Pain in the hip region <input type="checkbox"/>
Vernical ulcer <input type="checkbox"/>	Disease of the spleen <input type="checkbox"/>
Tumour in face, abdomen, thigh, genitalia <input type="checkbox"/>	
Hyper muscular in the cervical region <input type="checkbox"/>	
Dyspnoea <input type="checkbox"/>	
Loss of activity <input type="checkbox"/>	

Normal ☐ Abnormal ☐

E.ENBU:

INCREASED ENBU (BONE)	DECREASED ENBU (BONE)
Growth in bones and teeth <input type="checkbox"/>	Bones diseases <input type="checkbox"/>
	Loosening of teeth <input type="checkbox"/>
	Nails splitting <input type="checkbox"/>
	Falling of hair <input type="checkbox"/>

Normal ☐ Abnormal ☐

F.MOOLAI:

INCREASED MOOLAI (BONE MARROW)	DECREASED MOOLAI (BONE MARROW)
Heaviness of the body <input type="checkbox"/>	Osteoporosis <input type="checkbox"/>
Swollen eyes <input type="checkbox"/>	Sunken eyes <input type="checkbox"/>
Swollen phalanges	
chubby fingers <input type="checkbox"/>	
Oliguria	
Non healing ulcer <input type="checkbox"/>	

Normal ☐

Abnormal ☐

G.SUKKILAM/SURONITHAM:

INCREASED SUKKILAM/SURONITHAM (SPERM OR OVUM)	DECREASED SUKKILAM/SURONITHAM (SPERM OR OVUM)
Infatuation and lust towards women / men <input type="checkbox"/>	Failure in reproduction <input type="checkbox"/>
Urinary calculi <input type="checkbox"/>	Pain in the genitalia <input type="checkbox"/>

Normal ☐

Abnormal ☐

## [9] DHASANAADI

	1. Normal	2. Affected	
1. Idagalai	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Pingalai	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Suzhumunai	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Siguvai	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Purudan	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Kaanthari	<input type="checkbox"/>	<input type="checkbox"/>	_____
7. Atthi	<input type="checkbox"/>	<input type="checkbox"/>	_____
8. Alambudai	<input type="checkbox"/>	<input type="checkbox"/>	_____
9. Sangini	<input type="checkbox"/>	<input type="checkbox"/>	_____
10. Kugu	<input type="checkbox"/>	<input type="checkbox"/>	_____

## 10.KOSANGAL

	1. Normal	2. Affected
1. Annamayakosam	<input type="checkbox"/>	_____
2. Praanamaya kosam	<input type="checkbox"/>	_____
3. Manomayakosam	<input type="checkbox"/>	_____
4. Vignanamayakosam	<input type="checkbox"/>	_____
5. Anandhamayakosam	<input type="checkbox"/>	_____

## [11] MUKKUTRA MIGU GUNAM

### I. Vali Migu Gunam

1. Emaciation	<input type="checkbox"/>
2. Complexion – blackish	<input type="checkbox"/>
3. Desire to take hot food	<input type="checkbox"/>
4. Shivering of body	<input type="checkbox"/>

5. Abdominal distension ☐

6. Constipation ☐

7. Insomnia ☐

8. Weakness ☐

9. Defect of sense organs ☐

10. Giddiness ☐

11. Lack of interest ☐

## **II. Vali Kurai Gunam**

1.Body pain ☐

2.Diminished voice ☐

3.Diminished work ☐

4.Delirium ☐

5.Arivu mangal ☐

6.Features of increased Kapha ☐

## **III. Pitham Migu Gunam**

1. Yellowish discolouration of skin ☐

2. Yellowish discolouration of the eye ☐

3. Yellow coloured urine ☐
4. Yellowishness of faeces ☐
5. Increased appetite ☐
6. Increased thirst ☐
7. Burning sensation over the body ☐
8. Sleep disturbance ☐

#### **IV. Pitham Migu Gunam**

1. Indigestion ☐
2. Chillness ☐
3. Discolouration ☐
4. Disranged Kapha ☐

#### **V. Kapham migu gunam**

1. Increased salivary secretion ☐
2. Reduced activeness ☐
3. Heaviness of the body ☐
4. Body colour – fair complexion ☐
5. Chillness of the body ☐
6. Reduced appetite ☐

7. Eraippu ☐

8. Increased sleep ☐

**VI. Kapham migu gunam**

1. Giddiness ☐

2. Loss of fluid in the Joints ☐

3. Increased Sweating ☐

4. Palpitations ☐

**[12]. NOIUTRA KALAM**

1. Kaarkaalam (Aug15-Oct14) ☐ 2. Koothirkaalam (Oct15-Dec14) ☐

3. Munpanikaalam (Dec15-Feb14) ☐ 4. Pinpanikaalam (Feb15-Apr14) ☐

5. Ilavanirkaalam (Apr15-June14) ☐ 6. Muthuvenirkaalam (June15-Aug14) ☐

**[13]. NOI UTRA NILAM**

1. Kurunji ☐ 2. Mullai ☐ 3. Marutham ☐  
(Hilly terrain) (Forest range) (Plains)

4. Neithal ☐ 5. Paalai ☐  
(Coastal belt) (Desert)

[14]. Date of Birth ☐☐ ☐☐ ☐☐☐☐

[15]. Time of Birth  AM ☐ PM ☐

[16]. Place of Birth: \_\_\_\_\_

[17]. **RASI (ZODIAC SIGN)**

- |             |                          |              |                          |             |                          |
|-------------|--------------------------|--------------|--------------------------|-------------|--------------------------|
| 1. Mesam    | <input type="checkbox"/> | 2. Rishabam  | <input type="checkbox"/> | 3. Midhunam | <input type="checkbox"/> |
| 4. Katakam  | <input type="checkbox"/> | 5. Simmam    | <input type="checkbox"/> | 6. Kanni    | <input type="checkbox"/> |
| 7. Thulam   | <input type="checkbox"/> | 8. Viruchiam | <input type="checkbox"/> | 9. Dhanusu  | <input type="checkbox"/> |
| 10. Maharam | <input type="checkbox"/> | 11. Kumbam   | <input type="checkbox"/> | 12. Meenam  | <input type="checkbox"/> |

[18]. **NATCHATHIRAM (BIRTH STARS):**

- |                |                          |                   |                          |                  |                          |
|----------------|--------------------------|-------------------|--------------------------|------------------|--------------------------|
| 1. Aswini      | <input type="checkbox"/> | 2. Barani         | <input type="checkbox"/> | 3. Karthikai     | <input type="checkbox"/> |
| 4. Rohini      | <input type="checkbox"/> | 5. Mirugaseeradam | <input type="checkbox"/> | 6. Thiruvathirai | <input type="checkbox"/> |
| 7. Punarpoosam | <input type="checkbox"/> | 8. Poosam         | <input type="checkbox"/> | 9. Ayilyam       | <input type="checkbox"/> |
| 10. Makam      | <input type="checkbox"/> | 11. Pooram        | <input type="checkbox"/> | 12. Utthiram     | <input type="checkbox"/> |
| 13. Astham     | <input type="checkbox"/> | 14. Chithirai     | <input type="checkbox"/> | 15. Swathi       | <input type="checkbox"/> |
| 16. Visakam    | <input type="checkbox"/> | 17. Anusam        | <input type="checkbox"/> | 18. Kettai       | <input type="checkbox"/> |
| 19. Moolam     | <input type="checkbox"/> | 20. Pooradam      | <input type="checkbox"/> | 21. Uthiradam    | <input type="checkbox"/> |

22.Thiruvonam ☐

23.Avittam ☐

24. Sadayam ☐

25.Poorattathi ☐

26.Uthirattathi ☐

27.Revathi ☐

28. Not Known ☐

**Date :**

**Signature of Investigator :**

**Signature of Lecturer:**



**NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47**

**DEPARTMENT OF NOI NAADAL**

**A STUDY ON DIAGNOSTIC METHODOLOGY AND  
SYMPTOMATOLOGY OF “SEYA KAMAALAI”**

**FORM-III**  
**LABORATORY INVESTIGATIONS**

1. O.P No: \_\_\_\_\_ Lab.No \_\_\_\_\_ Serial No \_\_\_\_\_

2. Name: \_\_\_\_\_

3. Date of birth : 

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                    D D           M M           Y E A R

4. Age : \_\_\_\_\_ years

5. Date of assessment: \_\_\_\_\_

**HEMATOLOGY :**

Hemoglobin : .....gm %

Total RBC count : .....millions cells / cu.mm

Total WBC count : .....cells / cu.mm

Differential count:

Polymorphs : .....%

Lymphocytes : .....%

Monocytes : .....%

Basophils ; .....%

Eosinophils : .....%

Platelet count :..... lakhs cells / cu.mm

ESR (mm ) ½ Hr:

1 Hr:

Red Blood Cell Indices:

Mean Corpuscular Volume

Mean Corpuscular Hemoglobin

Mean Corpuscular Hemoglobin Concentration.

Periperal Blood Smear

Bleeding Time

Clotting Time

## **BIO CHEMISTRY**

Sugar (F) :.....mg%

PP :.....mg%

Total cholesterol :.....mg %

HDL :..... mg %

LDL :.....mg %

VLDL :..... mg%

TGL :..... mg%

### **Renal function test:**

Urea :..... mg %

Creatinine :.....mg %

### **Liver function test:**

SGOT :.....IU

SGPT :.....IU

Alkaline phosphatase :.....IU

Serum Total bilirubin-----mgs%

Serum direct bilirubin-----mgs%

Serum indirect bilirubin-----mgs%

Serum Total Protein : .....gm %

Serum Albumin :.....gm %

Serum Globulin :.....gm %

**URINE ANALYSIS:**

Neerkuri \_\_\_\_\_

Neikuri \_\_\_\_\_

Albumin \_\_\_\_\_

Sugar (F) \_\_\_\_\_

(PP) \_\_\_\_\_

Deposits \_\_\_\_\_

**MOTION :**

Ova:

Cyst:

Occult blood:

**OTHER INVESTIGATIONS:**

**Date :**

**Signature of Investigator :**

**Signature of Lecturer:**

**NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47.**  
**DEPARTMENT OF NOI NAADAL**  
**A STUDY ON DIAGNOSTIC METHODOLOGY AND SYMPTOMATOLOGY OF**  
**“SEYA KAMAALAI”**  
REGISTRATION NO: 32103206 (2011-2013)

**FORM IV**  
**INFORMED WRITTEN CONSENT FORM**

I .....exercising my free power of choice, hereby give my consent to be included as a subject in the diagnostic trial entitled “ A study on SEYA KAMAALAI ”. I may be asked to give urine and blood samples during the study.

I have been informed about the study to my satisfaction by the attending investigator about the purpose of this trial, the nature of study and the laboratory investigations. I also give my consent to publish my study results in scientific conferences and reputed scientific journals for the betterment of clinical research.

I am also aware of my right to opt out of the trial at any time during the course of the trial without having to give the reasons for doing so.

**NAME OF THE VOLUNTEER :**

**SIGNATURE OR THUMB IMPRESSION  
OF THE VOLUNTEER :**

**SIGNATURE OF INVESTIGATOR :**

**DATE:**

**SIGNATURE OF LECTURER :**

தேசிய சித்த மருத்துவ நிறுவனம், சென்னை-47.

நோய் நாடல் துறை

“செய் காமாலை - நோய் கணிப்பு முறை மற்றும் குறிகுணங்களை பற்றிய ஓர் ஆய்வு”

பதிவு எண்-32103206 (2011-2013)

ஒப்புதல் படிவம்

ஆய்வாளரால் சான்றளிக்கப்பட்டது

நான் இந்த ஆய்வை குறித்த அனைத்து விபரங்களையும் நோயாளிக்கு புரியும் வகையில் எடுத்துரைத்தேன் என உறுதியளிக்கிறேன்.

தேதி :

கையொப்பம் :

இடம்:

பெயர் :

## நோயாளியின் ஒப்புதல்

நான், என்னுடைய சுதந்திரமாக தேர்வு செய்யும்  
உரிமையைக் கொண்டு இங்கு தலைப்பிடப்பட்ட “செய் காமாலை” நோயை  
கணிப்பதற்கான மருத்துவ ஆய்விற்கு என்னை உட்படுத்த ஒப்புதல் அளிக்கிறேன்.

என்னிடம் இந்தமருத்துவ ஆய்வின் காரணத்தையும், மருத்துவ ஆய்வுக்கூட  
பரிசோதனைகள் பற்றி திருப்தி அளிக்கும் வகையில் ஆய்வு மருத்துவரால் விளக்கிக்  
கூறப்பட்டது.

நான் இந்த மருத்துவ ஆய்வின் போது காரணம் எதுவும் கூறாமல், எப்பொழுது  
வேண்டுமானாலும் இந்த ஆய்விலிருந்து என்னை விடுவித்து கொள்ளும் உரிமையை  
தெரிந்திருக்கின்றேன்.

தேதி:

இடம்:

கையொப்பம் :

பெயர் :

தேதி :

சாட்சிக்காரர் கையொப்பம்:

இடம்:

பெயர் :

உறவுமுறை:

**NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47.**  
**DEPARTMENT OF NOI NAADAL**  
**A STUDY ON DIAGNOSTIC METHODOLOGY AND SYMPTOMATOLOGY**  
**OF “SEYA KAMAALAI”**

**FORM IV- A - PATIENT INFORMATION SHEET**

**PURPOSE OF RESEARCH AND BENEFITS:**

The diagnostic research study in which your participation is proposed to assess the diagnostic methods in Siddha methodology in “SEYA KAMAALAI” patients. Knowledge gained from this study would be of benefit to patients suffering from such conditions for the diagnosis and prognosis.

**STUDY PROCEDURE:**

You will be interviewed and examined as OP and IP patients at the study centre. At the first visit the physician will conduct a brief physical examination and assess the condition followed by Envagai thervu and routine blood and urine analysis. After matching the inclusion criteria you will be included in this study and you will be examined on the basis of Envagai thervu.

**POSSIBLE RISK:**

During this study there may be a minimum pain to you while drawing blood sample.

**CONFIDENTIALITY:**

Your medical records will be treated with confidentiality and will be revealed only to other doctors / scientists. The results of this study may be published in a scientific journal, but you will not be identified by your name.

## **YOUR PARTICIPATION AND YOUR RIGHTS:**

Your participation in this study is voluntary and you may be withdrawn from this study anytime without having to give reasons for the same. You will be informed about the findings that occur during the study. If you do agree to take part in this study, your health record will need to be made available to the investigators. If you don't wish to participate at any stage, the level of care you receive will in no way be affected.

The Ethics committee cleared the study for undertaking at OPD and IPD, NIS. Should any question arise with regards to this study you contact following person

Contact	: Investigator
	Department of Noi Naadal
	National Institute of Siddha,
	Chennai-600 047.



தேசிய சித்த மருத்துவ நிறுவனம், சென்னை-47.

நோய் நாடல் துறை

“செய் காமாலை”- நோய் கணிப்பு முறை மற்றும் குறிகுணங்களை பற்றிய ஓர் ஆய்வு”

பதிவு எண்-32103206(2011-2013)

நோயாளியின் தகவல் படிவம்

ஆய்வின் நோக்கமும் பயனும்:

தாங்கள் பங்கேற்கும் இவ்வாய்வு -“செய் காமாலை” நோய் கணிப்பு முறை மற்றும் குறிகுணங்களை பற்றிய ஓர் ஆய்வு” சித்த மருத்துவ முறையில் நோயை கணிப்பதற்கான ஓர் ஆய்வுமுறை. இவ்வாய்வு தங்களின் நோய்கணிப்பை பற்றியும் நோயின் போக்கை பற்றியும் அறிய உதவும்.

ஆய்வு முறை:

தாங்கள் நோர்காணல் மற்றும் பரிசோதனைகளின் மூலம் உள்நோயாளி, வெளிநோயாளி பிரிவில் ஆய்வு செய்யப்படுவீர்கள். முதல் நோர்காணலின்போது ஆய்வாளரால் உடல் பரிசோதனை, நீர், இரத்தம், மற்றும் மலம் பரிசோதனை செய்து குறிப்பிட்ட குறிகுணங்கள் இருப்பின் இவ்வாய்விற்காக எடுத்துக்கொள்ளப்படுவீர்கள்.

நேரும் உபாதைகள்:

இவ்வாய்வில் இரத்த பரிசோதனைக்காக இரத்தம் எடுக்கும்போது சிறிதளவு வலி ஏற்படலாம்.

மந்தணம் :

தங்களின் மருத்துவ ஆவணங்கள் அனைத்தும் மருத்துவர், ஆய்வாளர் அல்லாத பிறரிடம் தெரிவிக்கப்படமாட்டாது.

நோயாளியின் பங்களிப்பும் உரிமைகளும்:

இவ்வாய்வில் தங்களின் பங்கேற்பு தன்னிச்சையானது. இவ்வாய்வில் தாங்கள் ஒத்துழைக்க இயலவில்லையெனில் எப்பொழுது வேண்டுமானாலும் காரணம் எதுவும் கூறாமல் விலகிக்கொள்ளலாம். இவ்வாய்வின்போது அறியப்படும் தகவல்கள் தங்களுக்கு தெரிவிக்கப்படும். நோயாளியின் ஒப்புதலுக்கிணங்க நோய்கணிப்பு விவரங்களை ஆய்வாளர் பயன்படுத்திக்கொள்வார். நோயாளி ஆய்வினிடையே ஒத்துழைக்க மறுத்தாலும் எந்த நிலையிலும் நோயாளியை கவனிக்கும் விதம் பாதிக்கப்பட மாட்டது. நிறுவன நெறிமுறை குழுவும் (Institutional Ethical committee) மேற்கண்ட ஆய்வினை மேற்கொள்ள ஒப்புதல் அளித்துள்ளது.

ஆய்வு குறித்த சந்தேகங்கள் இருப்பின் கீழ்க்கண்ட நபரை தொடர்பு கொள்ளவும்.

பட்டமேற்படிப்பாளர் :

ஆய்வாளர்

நோய் நாடல் துறை

தேசிய சித்த மருத்துவ நிறுவனம்,

சென்னை-47.



# NATIONAL INSTITUTE OF SIDDHA

(An Autonomous Body under Department of AYUSH)  
Ministry Of Health & Family Welfare, Government of India

Tambaram Sanatorium, Chennai - 600 047  
Tel : 044-22411611 Fax : 044-22381314  
E-mail : nischennaisiddha@yahoo.co.in  
Website : www.nischennai.org

Name: Dr. S. Sangeetha Reg. No: 32103206  
Title: A STUDY ON DIAGNOSTIC METHODOLOGY AND SYMPTOMATOLOGY OF "SEYA KAMALAJI" IRON DEFICIENCY ANAEMIA

No. NIS/IEC/2011/3/38 - 24/12/2011

## DECISION

Opinion of the Institutional Ethics Committee – Please Check one

☒ Approval

☐ Modifications required prior to approval (Please specify one space below)

☐ Disapproval

Date of review: \_\_\_\_\_

K. Manickavasagam  
(Dr. K. MANICKAVASAGAM)  
Member Secretary

Signed: S. Sangeetha (Please print name) Dr. V. SUBRAMANIAN

chair person  
(Please delete as appropriate, Chairperson, Secretary)

Modifications needed

Modification given to candidate

The research proponent is hereby informed that the Institutional Ethics Committee will require the following:

1. All adverse drug reactions (ADRs) that are both serious and unexpected to be reported promptly to the IEC within 7 working days
2. The progress report to be submitted to the IEC atleast annually
3. Upon completion of the study, a final study status report needs to be submitted to the IEC





# The Tamil Nadu Dr. M.G.R. Medical University

69, Anna Salai, Guindy, Chennai-600 032

This Certificate is awarded to

Mr / Ms / Dr ..... **S. SIVASANGEETHA** .....

for participating as a Resource Person / Delegate in the IX Workshop  
on **"Research Methodology & Biostatistics"**

for AVUSH Post-Graduates & Researchers  
organized by the Department of Siddha

The Tamil Nadu Dr. M.G.R. Medical University

from 24th September 2012 to 28th September 2012.

**Dr. N. KABILAN** MD (Siddha)  
READER, DEPT. OF SIDDHA

**Dr. K. SIVASANGEETHA** MD  
REGISTRAR (FAC)

**DR. MAYILVAHANAN NATARAJAN** D.Sc.  
M.S.Orth. M.Ch.Orth. (Ipool) Ph.D. (Orth. Onco.) F.R.C.S. (Eng)  
**7th VICE CHANCELLOR**